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U.S. DEPARTMENT OF COMMERCE
OFFICE OF TECHNICAL SERVICES
WASHINGTON 25, D. C.

TECHNICAL TRANSLATIONS

U.S. DEPARTMENT OF COMMERCE
Luther H. Hodges, *Secretary*

OFFICE OF TECHNICAL SERVICES
John C. Green, *Director*

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TECHNICAL TRANSLATIONS

Volume 9, Number 3 Pages 217 - 325 February 15, 1963

*Descriptors marked with an asterik are included in the subject index.

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Order from HMSO $0.77, $9.86/year

This bulletin includes information from China, translations available for purchase or on loan from National Lending Library miscellaneous announcements, and trans. of #Tsvetnye Metally (USSR) 1962 [v. 35] no. 4, p. 1-3; Novye Knigi (USSR) 1962, no. 17, p. 60-61; Tekstil'naya Promyshlennost' (USSR) 1962 [v. 22] no. 3, p. 1-4; Zashchita Rastenii [ot Vreditelei i Boleznei] (USSR) 1962 [v. 7] no. 4, p. 63; and from Izvestiya (USSR) 1962, 18 Feb, p. 2; 18 May, p. 1 and 3; 6 Aug, p. 1.

DESCRIPTORS: Translations, *Metallurgy, Copper, Zinc, Lead, *Industrial production, Automation, Literature, Conferences, *Shoes, *Textiles, *Plants, *Pest control, *Scientific personnel, Training, *Research program administration, Bibliography, Abstracts

Contents:
Trends in the projects from the special design office of the State Institute of Non-ferrous Metallurgy (SKB GINTsVETMENT) by M. M. Lakernik and G. I. Glushkov
Science and production, by V. Kirillin
The "library on automation" series, by Yu. Shchurova
Scientific Technical Conference of Workers in the Footwear Industry, Dnepropetrovsk, 22-24 Nov 61, by A. A. Trubchaninov
Further improving the variety and quality of fabrics, by A. S. Bogaeva
The Conference on Plant Quarantine, Moscow, 16-19 Jan 62, by P. A. Klyushkin
The measures being taken to further improve the selection and training of scientific personnel
The co-ordination of scientific research work, by K. N. Rudnev.

NLL TRANSLATIONS BULLETIN, 1962, VOL. 4, NO. 11, P. 999-1087. Nov 62, lv.
Order from HMSO $0.77, $9.86/year

This bulletin includes information from the USSR, translations available from the NLL Loan collection, miscellaneous information, and trans. of Ekonomicheskaya Gazeta (USSR) 1962, ##no. 27[48] p. 5; no. [30(51)] p. 3; ##no. 31[52] p. 3-4; and Mekhanizatsiya i Avtomatizatsiya Proizvodstva (USSR) 1962, v. 16, no. 3, p. 3-6.

DESCRIPTORS: *Translations, Scientific reports, Scientific research, *Geology, *Steel industry, Automation, *Documentation, Bibliography, Abstracts.

Contents:
Geology and technical progress, by A. Sidorenko
On the way to complete automation of the iron and steel industry, by A. K. Adabash'yan and M. N. Starovich
##An important step in developing the technical information service, by N. Arutyunov
##Taking the lead in technical progress, by B. Paton.

NLL TRANSLATIONS BULLETIN, 1962, VOL. 4, NO. 12, P. 1089-1175 AND INDEX VOL. 3. Dec 62, lv.
Order from HMSO $0.77, $9.86/year

This bulletin includes reports on visits, translations available for purchase or on loan from national Lending Library loan collection, miscellaneous information and trans. of Mekhanizatsiya i Avtomatizatsiya [Proizvodstva] (USSR) 1962, v. 16, no. 7, p. 57-59; Novye Knigi (USSR) 1962, no. 18, p. 51-53; no. 35, p. 46-52; and ##Pravda [Moscow] (USSR) 1962 [no. 182] 1 July, p. 2. ##Another trans. is available from OTS or SLA $1.10 as 62-32378, JPRS-14783, 9 Aug 62 [10]p.

DESCRIPTORS: *Translations, Scientific reports, Scientific research, *Hoists, *Conveyors, Construction, Literature, Statistical data, Conferences, *Mechanical engineering, Bibliography, Abstracts, Indexes.

Contents:
Main trends of development in lifting and conveying machinery construction
Statistics on the Soviet press, by Ya. Sibiryakov
##New horizons of science
New publications for mechanical engineers, by I. Monastyrskii
Index, v. 3.

USSR INDUSTRIAL DEVELOPMENT: SOVIET TRAGTORS AND AGRICULTURAL MACHINERY NO. 42. 23 Nov 62 [16]p. JPRS: 16307.
Order from OTS or SLA $1.60 63-13265

Trans. of Traktory i Sel'khozmashiny (USSR) 1962 [v. 32] no. 9, p. 33-34, 36-38; and from Leninskoe Znamya (USSR) 1962, 30 Aug; Sovetskaya Litva (USSR) 1962, 30 Aug.

DESCRIPTORS: *Industrial production, *Tractors, Agricultural machinery, Specifications, Design, Industrial plants, Economics.

Contents:
Combine production must increase
Leningrad plant produces a mechanical gardener
Special ploughs, by A. N. Ustinov
Concerning an uninterrupted transfer towards the production of DT-75 tractors, by M. S. Siedl'nikov.

USSR INDUSTRIAL DEVELOPMENT: SOVIET TRACTORS AND AGRICULTURAL MACHINERY NO. 43. 26 Nov 62 [39]p. JPRS: 16340.
Order from OTS or SLA $3.60 63-13331

Trans. of Traktory i Sel'khozmashiny (USSR) 1962 [v. 32] no. 7, p. 28-32; and from Ekonomicheskaya Gazeta (USSR) 1962, no. 33[54]; and no. 35[56].

DESCRIPTORS: *Industrial production, *Tractors, *Agricultural machinery, Design, Specifications, Fertilizers, *Trailers, Industrial plants, Automation, Economics.

Contents:
The RPTU-2.0 fertilizer discributor, by A. T. Karpov
The TUP-3PP general duty trailer distributor, by B. P. Chernikov
Mechanization and complete automation in tractor and agricultural machine building, by A. K. Ignat'ev
T-74 tractor on the assembly line of the Khar'kov tractor plant, by G. Makeev
Agricultural machinery spare parts problems, by I. Seryakov
Increasing machinery production, by G. Abraimov.

USSR INDUSTRIAL DEVELOPMENT: SOVIET TRACTORS AND AGRICULTURAL MACHINERY NO. 44. 27 Nov 62 [24]p. JPRS: 16371.
Order from OTS or SLA $2.60 63-13287

Trans. of Traktory i Sel' khozmashiny (USSR) 1962 [v. 32] no. 8, p. 32-36; and partial trans. of Byulleten' Tekhniko-Ekonomicheskoi Informatsii (USSR) 1962, no. 9, p. 56-63; and from Komsomol'skaya Pravda (USSR) 1962, 20 July, p. 1; Izvestiya (USSR) 1962, 30 Aug.

DESCRIPTORS: *Industrial production, *Tractors, *Agricultural machinery, Control, Programming, Cotton, Soils, Plants, Agriculture, Erosion, Climatic factors, Wind, Reduction, Machines, Rotation, Cargo vehicles, Trailers, Production, Cattle, Food, Loaders, Electric machinery, Seeds, Processing, Cleaning.

Contents:
The planter with a programmed control
SKO-4 machine for gathering residuals of a cotton crop, by K. P. Yushin
The KRN-4. 2U cultivator-plant feeder, by G. V. Chernyavskii
The KEP-3 cultivator for anti-erosion soil cultivation, by N. G. Zinchenko
The MRB-6 rotary soil cultivator, by P. P. Antonyuk
The 1-PTS-5 tractor trailer, by R. K. Astankova
Information on Lipetsk tractor plant, by M. Cherkasov
KIRA-1.5 rotary mower-chopper, by M. A. Pantus
The ZGS-100 grain loader, by M. I. Lerner
The G-86.01 mobile piling machine, by K. A. Glukhov
The UVR roller pile cleaner and the TVP mobile pile cleaner, by M. S. Laskin.

USSR INDUSTRIAL DEVELOPMENT: SOVIET TRACTORS AND AGRICULTURAL MACHINERY NO. 45. 30 NOV 62 [18]p. JPRS: 16447.
Order from OTS or SLA $1.60 63-13315

Trans. of Sakharnaya Svekla (USSR) 1962 [v. 7] no. 9, p. 42-44 (excerpts); and from Ekonomicheskaya Gazeta (USSR) 1962, no. 36[57]p. 11 (excerpts); Sovetskaya Belorussiya (USSR) 1962, 29 July; 31 July; Pravda Vostoka (USSR) 1962, 31 July.

DESCRIPTORS: *Industrial production, *Tractors, *Agricultural machinery, Machines, Production, Design, Beets, Cleaning, Loading, Cargo vehicles, Vegetables, Cutting tools, Fertilizers, Excavators, Bulldozers, Industrial plants, Construction, Costs, Labor, Cotton, Irrigation systems, Quality control, Scheduling, Plants, Growth, Climatic factors, Conveyors.

Contents:
The sugar beet harvesting combines of the Dnepropetrovsk agricultural machine building plant
The Belorussian agricultural machinery production: This is what we need
Shop construction difficulties at the Lida agricultural machine building plant: Building under threat of breakdown, by P. Bulko
The Uzbek agricultural machine building plants: The lag will be overcome
The new beet harvesting combines, by V. I. Chernyakov

USSR INDUSTRIAL DEVELOPMENT: SOVIET TRACTORS AND AGRICULTURAL MACHINERY NO. 46. 3 Dec 62 [15]p. JPRS: 16483.
Order from OTS or SLA $1.60 63-13268

Trans. of Standartizatsiya (USSR) 1962 [v. 26] no. 9, p. 26; and from Pravda Ukrainy (USSR) 1962, 18 Aug; Pravda Vostoka (USSR) 1962, 15 Sep, p. 1; Izvestiya (USSR) 1962, 12 Oct, p. 5.

DESCRIPTORS: *Industrial production, *Tractors, *Agricultural machinery, Industrial plants, Economics, Quality control.

Contents:
Alarming signals from Serp i Molot plant, by N. Alaksandrov and M. Kozlov
A review of the quality of combines in operation, by M. D. Kalennikov
Tractor assembly plant undermines production of cotton picking machinery
A gas turbine tractor.

Ivanov, P.
UTILIZATION OF SLOPES FOR VINEYARDS AND ORCHARDS IN THE MOLDAVIAN SSR. Soviet Agriculture; Selected trans. no. 29. 23 Aug 60 [15]p. JPRS: 3736.
Order from OTS or SLA $1.60 60-31716

Trans. of Mezhdunarodnyy Sel'skokhozyaystvennyy [Zhurnal] (Bulgaria) 1960 [v. 4] no. 3, p. 118-128.

DESCRIPTORS: Agriculture, *Fruits, Growth, Agricultural machinery, Soils, *Terrain.

Krasnyanskaya, V. P.
RELATIONSHIP BETWEEN THE TEMPERATURE OF THE AIR AND THE SOIL TEMPERATURE AT A DEPTH OF 5 AND 10 CM AND ITS PRACTICAL APPLICATION (Svyaz' Temperatury Vozdukha s Temperaturoi Pochvy na Glubinakh 5 i 10 sm i Ee Prakticheskoe Primenenie) tr. by H. K. Gold. Sep 62, 6p. WB/T-91.
Order from OTS $0.50 63-11504

Trans. of Dal'nevostochnyi Nauchno-Issledovatek'skii Gidrometeorologicheskii Institut. Trudy, 1961, no. 12, p. 106-110.

DESCRIPTORS: Agriculture, Climatic factors, *Soils, Air, Temperature, Plants.

The relationships between the temperature of the air and the soil temperature at small depths, under Far Eastern conditions, are examined. The given relationships have application in agroclimatic studies to the extent that it is possible to determine differentially the period of sowing and planting of farm crops in various regions.

Neugebauer, V. [K.].
SOILS OF SOUTH BACHKA FROM THE VIEWPOINT OF IRRIGATION (SUMMARY) (Zemljista Juzne Backe sa Gledista Navodnjavanja). [1962] 2p.
Available on loan from SLA 63-10057

Trans. from Arhiv za Poljoprivredne Nauke i Tehniku (Yugoslavia) 1948 [v. 3] no. 5.

DESCRIPTORS: *Soils, *Irrigation systems, *Water, Chemical properties, *Soil mechanics.

Vasyutinskii, Yu. P. and Shagoyan, F. S.
HYDROPONIC METHOD OF GROWING GREEN FEED (Gidroponnyi Metod Vyrashchivaniya Zelenykh Kormov). 2 Aug 62, 12p. (figs. omitted). Trans. A-1357.
Order from OTS or SLA $1.60 62-32351

Trans. of Zhivotnovodstvo (USSR) 1962, v. 24, no. 1, p. 56-59.

DESCRIPTORS: Food, Cattle, *Plants, Growth, Water, Vitamins, Minerals.

Animal Husbandry

Denisov, V.
PRECISE DETERMINATION OF THE MILK FAT CONTENT FOR THE SELECTION OF BULLS BY TESTING THEIR PROGENIES (Utochnenie Otsenki "Zhirnomolochnosti" Bykov po Proiskhozhdeniyu). 14 Mar 62, 8p. Trans. A-1332.
Order from OTS or SLA $1.10 62-24957

Trans. of Sel'skoe Khozyaistvo Kirgizii (USSR) 1960 [v. 6] no. 10, p. 18-20.

DESCRIPTORS: *Cattle, *Genetics, *Milk fat, Production, Physiology, Reproduction, Embryology.

The milk fat content in cows increased during the time of embryonal development of hybrids, and especially during the next lactation period. This phenomenon, which is explained by the effect of the male on the female and of the embryo on the mother, was established on the basis of data on crossing the Alatausk cattle with the Jerseys and on the intrabreed breeding of the Alatausk cattle. This physiological effect of the offspring on the mother tells the most noticeably during the latter part of the embryonal life of the offspring and continues up to a similar influence of the next offspring; that is, during the course of the most part of the lactation period after the birth of the studied offspring. In 17 cases out of 20 the increase or reduction of the milk fat contents of mothers during the lactation after the birth of the evaluated bulls coincided with their hereditary characteristics, which were revealed as a result of comparison of this indicator in daughters of these bulls and in their mothers. This indicates the possibility of preliminary evaluation of the hereditary qualities of bulls before the commencement of their utilization as producers.

Kopevskii, N.
GOOD FEELINGS ADORN A HUMAN BEING (Dobre Chuvstva Ukrashayut Cheloveka). Jan 61 [9]p. MCL-783/1+2+3+4.
Order from OTS or SLA $1.10 61-27266

Trans. of Yunyi Tekhnik (USSR) 1960 [v. 5] no. 6, p. 37-41.

DESCRIPTORS: *Astronauts, *Dogs, *Space flight, Laboratory animals, Animals.

Among Soviet children, particularly among pioneers, there should be no cruel senseless boys and girls. We, the Soviet people, want each member of our most

humanistic and most righteous society in the world to be a high-minded person. Do not allow anyone to mistreat an animal. Let good and noble feelings fill the young hearts during their early years. They will be highly in place in later life i · our socialistic society. (Extract)

Plant Cultivation

Afanasijev, D.
SEED STIMULATION (Stimulacija Semena), tr. by Vladimir Ivir. 1962, 15p. PL-480 Agr.
Order from OTS $0.50 60-21636

Trans. of Sumarski List (Yugoslavia) 1958, v. 82, no. 5/6, p. 163-176.

DESCRIPTORS: *Seeds, *Stimulation, Trees, Alkaloids, Radio active isotopes, Chemicals.

Konovalov, Yu. B.
THE EFFECT OF MOISTURE DEFICIENCY IN THE SOIL ON THE RIPENING OF GRAIN WITH SUMMER WHEAT, tr. by W. Hall. [1962] 13p. (5 figs. omitted) 19 refs. [CSIRO] 5746.
Order from OTS or SLA $1.60 62-23721

Trans. of #Fiziologiya Rastenii (USSR) 1959, v. 6, no. 2, p. 183-189.

DESCRIPTORS: *Soils, Moisture, *Nitrogen, Plants, *Wheat, Growth, Seeds, Photosynthesis.

During a drought at the period of ripening the grain dries out less than the vegetative parts of the plant. Soil dryness at first accelerates, or at least does not alter, the rate of grain ripening. The increase in the rate of grain ripening takes place at the expense of premature depletion of the vegetative parts of the plant. Lack of moisture in the soil at first increases the intake of nitrogenous substances into the grain not only relatively, but also absolutely. At the ripening period (milky ripeness) photosynthesis plays a substantial part in the accumulation of dry matter in the grain. Therefore the reduction of photosynthesis must be recognised as being the most important reason for the reduction in yield with a drought at this period, together with the increased expenditure of organic substances on respiration. Movement of nitrogen from the vegetative parts to the grain takes place with sufficient intensity even in darkness. For the more drought-resistant variety, a drought at the stage of grain development will be characterised by the greater acceleration in rate of ripening, less dehydration of the vegetative mass and a less marked rise in percent content of nitrogen in the grain. (Author)

ASTRONOMY

SOVIET INFRARED STELLAR SPECTROSCOPY: ANNOTATED BIBLIOGRAPHY, 1947-62. Rept. on Aid Work Assignment no. 35. 28 Sep 62 [50]p. 127 refs. AID rept. 62-153; AD-285 336.
Order from OTS or SLA $4.60 62-33374

DESCRIPTORS: *Bibliography, *Infrared spectroscopy, Stars, *Astronomical data, Spectrographic data, Abstracts, Photoelectric cells, Image converter tubes, Infrared spectrophotometers, Aurorae, Nebulae, Moon, Solar corona, Planetary atmospheres.

The 126 entries are arranged alphabetically by author.

Sokolov, A. G.
A RADIO TELESCOPE WITH AUTOMATIC CONTROL OF THE REFLECTOR SURFACE. 18 Sep 62 [5]p. FTD-TT-62-1121. AD-286 617
Order from OTS or SLA $1.10 62-33546

Unedited fough draft trans. of Soviet patent 142702 (671627/26) 27 June 60.

DESCRIPTORS: *Telescopes, Control systems, Reflectors, Surfaces, Automatic, Control, Radio astronomy, Astronomy, Optical equipment.

The proposed radio telescope differs in that it makes it possible to automatically correct the positions of the moving shields and to ensure a high degree of accuracy of the reflector surface. This is accomplished by using a source of light rays constantly directed, with the aid of lenses, towards fixed points of the theoretical surface of the radio telescope. When distortion of the reflector surface occurs, photocells mounted on the fixed points switch on a shifting mechanism. (Author)

Astrophysics

METEOR TRAIL OBSERVATIONS: ANNOTATED BIBLIOGRAPHY, 1960-JUNE 62. Rept. on AID Work Assignment no. 35. 1 Oct 62 [10]p. 33 refs. AID rept. 62-151; AD-285 335.
Order from OTS or SLA $1.10 62-33372

DESCRIPTORS: *Bibliography, *Meteors, Tracking, Astronomical data.

Balakin, N.
FROM "BULLETS WHICH RUN AND FLY" TO COSMIC ROCKETS. 20 Aug 62 [5]p. FTD-TT-62-1006; AD-285 830.
Order from OTS or SLA $1.10 62-33404

Unedited rough draft trans. of Kryl'ya Rodiny (USSR) 1959 [v. 10] no. 5, p. 18.

DESCRIPTORS: *Spaceships, *Space flight, Satellite vehicles, *Rocket research, Liquid rocket propellants, Interstellar matter, Ionosphere, Sounding rockets, Manned.

Chebotarev, G. A.
THE MOTION OF THE PERIHELION OF MERCURY AS ONE OF THE EMPIRICAL PROOFS OF THE CONCLUSIONS OF THE GENERAL THEORY OR RELATIVITY. [1962] 17p. 24 refs.
Order from OTS or SLA $1.60 62-14805

Trans. of article from an unidentified source, n.d., p. 435-445.

DESCRIPTORS: *Planets, *Mercury (Planet), *Celestial mechanics, Orbital flight paths, Acceleration, *Relativity theory, Tables.

A thorough analysis is given of the question of the value of acceleration of the perihelion of Mercury.

Kislyakov, A. G., Kuz'min, A. D., and Salomonovich, A. E.
RADIO EMISSION OF VENUS ON THE 4-mm WAVELENGTH. 1 Oct 62 2p. AID rept. 62-158. AD-286 249
Order from OTS or SLA $1.10 62-33574

Abstract trans. of #Astronomicheskii Zhurnal (USSR) 1962, v. 39, no. 3, p. 410-417.

DESCRIPTORS: Planets, *Venus, Radio signals, Radio astronomy, Astronomy, Temperature, Brightness.

Kokhan, E. K.
INVESTIGATIONS, CONDUCTED IN THREE REGIONS OF THE SPECTRUM, OF THE DEGREE OF POLARIZATION AND OF THE ANGLE OF THE PLANE OF POLARIZATION OF LIGHT REFLECTED FROM LUNAR DETAILS. 19 Sep 62, 3p. AID rept 62-142, suppl. to AID rept. 62-4; AD-285 341.
Order from OTS or SLA $1.10 62-33384

Abstract trans. of Akademiya Nauk SSSR. Komissiya po Fizike Planet. Izvestiya, 1959, v. 1, p. 41-53.

DESCRIPTORS: *Moon, *Light, Reflection, *Polarization, Spectrographic data, Polariscopes.

Krasovskii, V. I.
STUDY OF SKY AND AURORA. [1962] 4p.
Order from OTS or SLA $1.10 62-18253

Trans. of Akad[emiya] Nauk [SSSR]. Vestnik, 1956 [v. 26] no. 5, p. 29-31.

DESCRIPTORS: Astrophysics, *Sky brightness, Luminescence, *Aurorae, Research program administration.

Monin, G. A.
SPECTRORECORDER OF RADIATION VELOCITIES. Sep 60 [5]p. (2 figs. omitted) 1 ref. MCL-234/III.
Order from OTS or SLA $1.10 61-27425

Trans. of [Akademiya Nauk SSSR. Krymskaya Astrofizicheskaya Observatoriya. Izvestiya, 1952, v. 8, p. 119-122].

DESCRIPTORS: *Spectrographic cameras, Operation, Sun, Thermal radiation, Velocity, Disks, Recording devices.

A description is given of a spectrorecorder of radiation velocities, operating on the solar unit of Simeiz Observatory. (Author)

Polozhentseva, T. A., Barabashov, N. P., and Ezerskii, V. I.
ON THE STATE OF ALPHONSUS CRATER BEFORE THE ONSET OF THE ERUPTION OF 3 NOV 58 [AND] SPECTROPHOTOMETRIC OBSERVATIONS OF LUNAR CRATERS. 21 Sep 62, 2p. AID rept. 62-150, suppl. to AID rept. 62-4; AD-285 347.
Order from OTS or SLA $1.10 62-33378

Abstract trans. of Akademiya Nauk SSSR. Komissiya po Fizike Planet. Izvestiya, 1961, v. 3, p. 46-55.

DESCRIPTORS: *Moon, *Cratering, Spectrographic data, *Spectrophotometers, Photometers.

Sytinskaya, N. N.
PROBABLE DIMENSIONS OF IRREGULARITIES IN THE MICRORELIEF OF THE LUNAR SURFACE. 19 Sep 62, 2p. AID rept. 62-141, suppl. to AID rept. 62-4; AD-285 340. NASA N62-17013.
Order from OTS or SLA $1.10 62-33385

Abstract trans. of Akademiya Nauk SSR. Komissiya po Fizike Planet. Izvestiya, 1959, v. 1, p. 81-84. Complete translations are available from OTS or SLA $1.10 as 62-14795 [1962] [8]p. and from ARS in its journal, v. 32, no. 3, $3.00.

DESCRIPTORS: *Moon, Surface properties, Light, Reflection, Optics, Microphotography.

For abstract see Technical Translations 8: 605, 1962.

Troitskii, V. S.
RADIO EMISSION FROM THE MOON: THE PHYSICAL STATE AND NATURE OF ITS SURFACE. 21 Sep 62, 2p. AID rept. 62-149, suppl. to AID rept. 62-4.
Order from OTS or SLA $1.10 62-33575

Abstract trans. of Akademiya Nauk SSSR. Komissiya po Fizike Planet. Izvestiya, 1961, v. 3, p. 16-29.

DESCRIPTORS: *Moon, Radio signals, Radio astronomy, Astronomy, Surface properties, Temperature, Geophysics.

Yakovlev, B. A.
TECTONIC PHENOMENA AND SOLAR ACTIVITY. 20 June 62, 6p. AID rept. 62-83. AD-278 629.
Order from OTS or SLA $1.10 62-32116

Abstract trans. of Astromicheskii Sbornik (USSR) 1960, no. 3/4, p. 152-157.

DESCRIPTORS: *Geology, *Sun, *Astrophysics, *Geophysics, Atmosphere, Lithosphere, Earthquakes, Volcanoes, Periodic variations.

Platonov, K. K.
[AVIATION PSYCHOLOGY: SELECTED PARTS].
8 Aug 62 [127]p. FTD-TT-62-1067; AD-284 155.
Order from OTS or SLA $10.10 62-33078

Unedited rough draft trans. of mono. Psikhologiya Letnogo Truda, Moscow, 1960, p. 107-221.

DESCRIPTORS: Aviation medicine, Psychology, *Emotions, *Instrument flight, Flight, *High altitude, Reaction (Psychology), *Flight speeds, Reaction time, *Space flight.

Contents:
Emotions and will
Flying by instruments; orientation by instruments
High altitude flight: factors affecting the psychic at high altitude flight
High speed flight, limit and time deficit in flight
Cosmic flight.

Personnel and Training

BIOGRAPHIES OF SOVIET SCIENTISTS. 19 Nov 62 [31]p. JPRS: 16254.
Order from OTS or SLA $3.60 63-13339

Trans. of 11 selected biographical articles from various Soviet sources.

DESCRIPTORS: *Scientific personnel, *Medical personnel, *Professional personnel.

Contents:
M. G. Anan'ev, A. L. Andreev, P. A. Baranov, V. D. Chaklin,
L. R. Leites, Ya. V. Peive, K. N. Rabinovich, S. B. Rafal'kes,
L. M. Shenderovich, I. D. Strashun, P. M. Zinov'ev.

SCIENTIFIC AND MEDICAL TRAINING IN THE USSR
27 Nov 62 [25]p. JPRS: 16368.
Order from OTS or SLA $2.60 63-13288

Trans. of Zdravookhranenie Rossiiskoi Federatsii (USSR) 1962 [v. 6] no. 7, p. 3-7; Zdravookhranenie (USSR) 1962 [v. 5] no. 2, p. 7-11; Vestnik Vysshei Shkoly (USSR) 1962 [v. 20] no. 7, p. 51-55; Mikrobiologiya (USSR) 1962, v. 31, no. 4, p. 763-764.

DESCRIPTORS: *Scientific personnel, *Medical personnel, Personnel, Training, *Education, Theses, Microbiology, Biology.

Contents:
Some problems of postgraduate training for medical personnel in the RSFSR, by V. V. Trofimov
Some problems in educating, placing and training medical personnel in Moldavia, by V. I. Sedun
Train the next generation of scientists with care, by I. P. Kleshchenok
Defense of dissertations, by I. V. Konova.

NEW MEDICAL INSTRUMENTS. 31 Jan 62, 23p. 10 refs. JPRS: 12239.
Order from OTS $0.75 62-11131

Trans. of Meditsinskaya Promyshlennost' SSSR, [1961, v. 15] no. 9, p. 46-59.

DESCRIPTORS: *Medical equipment, Electronic equipment, Blood pressure, Measurement, *Oscillographs, Teaching machines, *Pulse generators, *Cardiographs, *Hygrometers, Design, Operation, Circuits.

Contents:
Arterial oscillometer, by S. Vinekurskyi and others
New pulse-generating stimulator IS-01, by L. F. Sochivko and others
Electronic stethoscope, by A. M. L'vev and others
Medical electric hygrometers, by D. A. Gindin.

Boriskin, V. V., Oblapenko, P. V. and others.
ON THE POSSIBILITY OF DEVELOPING AN ANIMAL ORGANISM UNDER CONDITIONS OF AIR NITROGEN SUBSTITUTED BY HELIUM. 20 Aug 62 [10]p. 2 refs. FTD-TT-62-1072. AD-286 630.
Order from OTS or SLA $1.10 62-33641

Unedited rough draft trans. of Akademiya Nauk SSSR. Doklady, 1962, v. 143, no. 2, p. 475-478.

DESCRIPTORS: Embryology, *Chickens, Eggs, *Embryos, Growth, *Air, *Nitrogen, *Helium, Controlled atmospheres, Thermal conductivity.

The possibility was examined of developing chicken embryos under conditions of a substitution of helium for air nitrogen. The experimental results indicate that the development of chicken embryos and chicks in a gas medium, in which nitrogen replaced by helium, is possible. The basic cause of a lower deductivity of the chicks in this gas medium, in comparison to those in the air medium, is, in all probability, the high heat-conductivity of helium, enlarging the heat-supply and disturbing the heat balance of the organism. (Extract)

Budyko, M. I. and Tsitsenko, G. V.
CLIMATIC FACTORS OF THE THERMAL SENSITIVITY OF MAN (Klimaticheskie Faktory Teplooshchushcheniya Cheloveka) tr. by Irene A. Donehoo. Sep 62, 16p. 10 refs. WB/T-92.
Order from OTS $0.50 63-11505

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Geograficheskaya, 1960, no. 3, p. 3-11.

DESCRIPTORS: *Body temperature, Body surface, Temperature, Sensitivity, *Climatic factors, Physiology, *Clothing.

A method is given for computing the heat balance of the human body in which the entire complex of meteorological conditions, physiological factors, and certain types of clothing are taken into account. The method is analogous to recently developed methods for determining the heat balance of the active surface of the earth.

Chernigovskii, V. N.
CERTAIN PATHWAYS IN THE EVOLUTION OF INTEROCEPTIVE SIGNALIZATION. 12 Oct 62 [19]p. 61 refs. JPRS: 15685.
Order from OTS or SLA $1.60 62-33437

Trans. of an unidentified Russian mono., n.p., n.d., p. 375-390.

DESCRIPTORS: Physiology, Neurology, Nerves, *Blood vessels, Heart, Lungs, *Chemoreceptors, *Genetics, Signals, Neuromuscular transmission, *Ganglia, *Autonomic nervous system, Reflexes, Stimulation.

These pages will be devoted to a consideration of, the possible pathways of the evolution of the chemoreception and pressoreception of the sinocarotid interoceptive zone.

Ierusalimskii, N. D., Yuganov, E. M. and others.
USE OF CONTINUOUS CULTURE METHOD FOR PHYSIOLOGICAL INVESTIGATION OF CELLS OF MICROBES AND OTHER ORGANISMS [AND] MOTOR ACTIVITY OF INTACT ANIMALS UNDER THE CONDITIONS OF ARTIFICIAL GRAVITY. 10 Sep 62 [37]p. 15 refs. FTD-TT-62-1099. AD-286 574
Order from OTS or SLA $3.60 62-33596

Unedited rough draft trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Biologicheskaya, 1962 [v. 27] no. 3, p. 418-429 and 455-460.

DESCRIPTORS: Growth, *Microorganisms, Cells (Biology), Motor reactions, Animals, *Culture media, Laboratory equipment, Weightlessness, *Gravity, Simulation, Space medicine.

[Mikhailov, A. A., ed.]
STATIONS IN THE COSMOS: SELECTED ARTICLES. 16 Feb 62 [17]p. JPRS: 12566.
Order from OTS or SLA $1.60 62-19172

Trans. of mono. [Stantsii v Kosmose: Sbornik Statei] Moscow [1960] p. 413-429.

DESCRIPTORS: *Space stations, *Space biology, Space medicine, Physiology, Biochemistry, Immunology, Microbiology, Histology, Cytochemistry, Genetics

Contents:
Medico-biological investigations
Physiological, biochemical and immunological investigations
Microbiological and cytological investigations
Genetic investigations

Mizes, R., Peron, P., and Piret, J.-M.
THE TREATMENT OF INFANTILE SELF-MUTILATION WITH LEVOMEPROMAZINE (Le Traitement de l'Automutilation chez l'Enfant par la Levomepromazine). [1962] 17p.
Order from SLA $1.60 62-16223

Trans. of Ann[ales] Médico-Psychol[ogiques] (France) 1961 [v. 119] pt. 2, no. 5, p. 968-976.

DESCRIPTORS: Therapy, *Children, *Psychoneuroses, Mental deficiency, *Drugs, *Phenothiazine derivatives, Dosage, Toxicity.

Parin, V. V. and Yazdovskii, V. I.
ADVANCES IN SOVIET SPACE PHYSIOLOGY. LIFE SUPPORT SYSTEMS: SOVIET LITERATURE. Supplementary rept., AID Work Assignment no. 22. 3 July 62 [7]p. AID rept. 62-95.
Order from OTS or SLA $1.10 62-32110

Review trans. of *Fiziologicheskii Zhurnal (USSR) 1961, v. 47, no. 10, p. 1217-1226.

DESCRIPTORS: Space medicine, *Adaptation (Physiology), Dogs, *Closed-cycle ecological systems, *Space flight, Vibration, Weightlessness, Telemetering, Respiration, Temperature, Heart, *Space environmental conditions.

Anatomy and Physiology

Aubert, Jean-Paul and Milhaud, Gerard.
METHOD FOR THE MEASUREMENT OF THE PRINCIPAL ROUTES OF CALCIUM METABOLISM IN MAN (Méthode de Mesure des Principales Voies du Métabolisme Calcique Chez l'Homme) tr. by P. Hajdu. 30 June 60, 35p. (9 figs. omitted) 9 refs. NIH no. 6-26-60.
Order from OTS or SLA $3.60 60-23054

Trans. of Biochimica et Biophysica Acta (Netherlands) 1960, v. 39, no. 1, p. 122-139.

DESCRIPTORS: Measurement, *Metabolism, *Calcium, Man, *Absorption, Digestive systems, *Excretion, Urine.

Kavkasidze, A. G.
STRUCTURAL AND HISTOCHEMICAL CHANGES IN CENTRAL NERVOUS SYSTEM NEURONS FROM HYPOTHERMIA. 3 Dec 62 [9]p. 4 refs. JPRS: 16475.
Order from OTS or SLA $1.10 63-13369

Trans. of Akademiya Nauk Gruzinskoi SSR, Tiflis. Soobshcheniya, 1962, v. 29, no. 3, p. 365-371.

DESCRIPTORS: Cells (Biology), *Nervous system, Nuclei (Biology), *Nerve cells, Brain, *Nucleoproteins, *Hypothermia, Ganglia, Adaptation (Physiology).

The aim of the present work was the study of the structural and histochemical changes of ribonucleoproteins, deoxyribonucleoproteins and glycogen in various central nervous system neurons after hypothermia of different degrees (20 to 22°, 24 to 26°, and 28 to 30°) and durations (from one to three hours)

Lopashov, G. V., Stroeva, O. G., and Polezhaev, L. V.
THE DEVELOPMENT OF IMMUNOLOGICAL REACTIONS AND THE PROBLEM OF THE INCOMPATIBILITY OF TISSUE TRANSPLANTS [AND] THE PROCESS OF ORGAN REGENERATION IN ANIMALS. 19 Nov 62 [53]p. 91 refs. JPRS: 16238.
Order from OTS or SLA $5.60 63-13358

Trans. of Uspekhi Sovremennoi Biologii (USSR) 1950, v. 30, no. 2(5) p. 234-270.

DESCRIPTORS: *Immunology, Theory, Antibodies, Proteins, *Tissues (Biology), Transplantation, Regeneration, Age factors, Animals, *Cytology.

In our approach the phenomena of incompatibility are not regarded separately but rather in their specific association with a larger group of vital phenomena and the evolution of the latter. It is not the transplant which) adapts itself to the host but, conversely, the host which adapts itself to destroying the transplant, by defense reactions which have been created during the course of evolution. This capacity of defense against foreign bodies is an expression of evolutionary changes in the phenomena which in other cases lead to adaptation to environmental conditions, the phenomena of plasticity of proteins in their various relations in the cells. (Extracted from Lopashov and Stroyeva) The problem of the mode of formation of the regeneration primordium is of great importance for working out effective methods which would make it possible to control the regeneration process of organs and functions, intensify or reduce them, suppress a process which is occurring or produce a process where it is not occurring. This problem can be understood only on the basis of revealing the bitter battle between idealism and materialism which has occurred during the entire time of development of the study of regeneration. (Polezhaev)

Ovio, Giuseppe.
CRANIAL NERVES. [1962] 3p.
Order from SLA $1.10 62-10588

Trans. of mono. Storia dell' Oculistica; dalle Origini al 1850, v. 1, Cuneo, 1950, p. 263-264.

DESCRIPTORS: *Nerves, *Skull, *Anatomy, Brain.

Prokhorov, A. [M.].
IMPARTED RHYTHM. 4 June 62 [7]p.
FTD-TT-62-557. AD-286 107.
Order from OTS or SLA $1.10 62-32581

Unedited rough draft trans. of [Russian] newspaper article from an unidentified source, n.d.

DESCRIPTORS: *Rhythm, Physiology, Psychology, *Learning, Conditioned reflex, Reaction (Psychology), Fatigue (Physiology).

Tustanovskii, A. A. and Kositskii, G. I.
THE MUCOID SUBSTANCES OF ANIMAL TISSUES [AND] THE NATURE OF BIOLOGICAL TISSUE INCOMPATIBILITY DURING HOMOTRANSPLANTATION. 3 Dec 62 [55]p. 215 refs. JPRS: 16476.
Order from OTS or SLA $5.60 63-13372

Trans. of #Uspekhi Sovremennoi Biologii (USSR) 1962, v. 54, no. 1(4) p. 3-25 and 71-89.

DESCRIPTORS: *Tissues (Biology), Proteins, Mucus, *Glycoproteins, *Mucopoly saccharides, Distribution, Classification, *Immunology, Theory, Transplantation, Blood plasma, Antibodies.

A survey is made (Tustanovskii) of Soviet and Western literature dealing with the nomenclature of mucoid substances and with the distribution and exchange of aminopoly saccharides in tissues. A hypothesis is formulated (Kositskiy), concerning the nature of the immunological incompatibility of tissue homotransplants, based on the proposition that proteins participating in reciprocal exchanges between blood plasma and tissue can be received by the tissue in the form of combinations having individual, as well as type, specificity.

Vyazov, O. E.
INTRODUCTION TO THE STUDY OF THE IMMUNOLOGY OF EMBRYOGENESIS. 29 Nov 62 [25]p. 71 refs. JPRS: 16425.
Order from OTS or SLA $2.60 63-13341

Trans. of Uspekhi Sovremennoi Biologii (USSR) 1952, v. 33, no. 1, p. 47-63.

DESCRIPTORS: *Immunology, Theory, *Embryology, Growth, Age factors, Tissues (Biology), Antibodies, Sex, Bibliography.

A historical review of the literature reveals that the study of the antigenic properties of embryonic tissues has primarily followed the direction of determining the time of emergence during ontogenesis of one or another antigenic property inherent in the tissues of adult animals and man. A study of the antigenic properties which are specific only to embryonic tissues at a definite stage in development, in other words, the immunologic studies of the stages of growth, has been almost entirely neglected. It is concluded that for a solution of the problem of the participation of immunologic reactions in embryonic development, it is necessary to study the antigens which are specific for tissues at definite stages of embryonic growth.

Biochemistry

ABSTRACTS PERTAINING TO COMMUNIST CHINA IN SOVIET ABSTRACTS JOURNAL NO. 22 (BIOCHEMISTRY SERIES). 19 Sep 62 [25]p. JPRS: 15337.
Order from OTS or SLA $2.60 62-33113

Trans. of selected abstracts from Referativnyi Zhurnal. Khimiya. Biologicheskaya Khimiya (USSR) 1961, nos. 9-10, 22-23 and 1962, no. 5-7, 9-10.

DESCRIPTORS: *Abstracts, *Biochemistry, Biology, Microbiology, Plants, Proteins, Nucleic acids, Pharmacology, Enzymes, Animals, *China.

Cartier, Pierre.
ISOLATION AND IDENTIFICATION OF PYROPHOSPHATES IN BONE TISSUE, tr. by Bertha P. Klenova. 12 Jan 59, 3p. 3 refs. 12 Jan 59, 3p. 3 refs.
TVA 3721.
Order from OTS or SLA $1.10 62-32274

Trans. of [Academie des Sciences, Paris]. Compt[es] Rend[us] (France) 1956, v. 243, p. 982-985 (pub. by Gauthier-Villars et Cie, Paris).

DESCRIPTORS: *Phosphates, Identification, *Bone, Calcification, Electrophoresis.

Garino-Canina, Ettore.
ANTISEPTICS AND ANTIBIOTICS IN ENOLOGIC TECHNOLOGY. Paper presented at the National Congress of Enologic Technology (no. 9) Como, May 54. [1962] 18p.
Order from SLA $1.60 62-14955

Trans. of Rivista di Viticoltura e di Enologia (Italy) 1954, v. 7, p. 247-255.

DESCRIPTORS: Biochemistry, *Wines, *Fermentation, Inhibition, Ketones, *Antibiotics, Alcohols.

Gershenovich, Z. S., Krichevskaya, A. A., and Bronovitskaya, Z. G.
THE SYSTEM OF AMMONIA-GLUTAMINE, GLUTAMIC ACID, AND OXYDIZING PHOSPHORYLATION IN CASE OF OXYGEN INTOXICATION. [1962] [21]p. (1 fig. omitted) 36 refs.
Order from OTS or SLA $2.60 62-14699

Trans. of mono. [Voprosy Biokhimii Nervnoi Sistemy] (Problems in the Biochemistry of the Nervous System) [ed. by] A. V. Palladin, Kiev, 1957, chap. 28, p. 311-322.

DESCRIPTORS: Biochemistry, Physiology, *Oxygen, *Poisoning, *Nervous system, *Glutamine, *Phosphorylation, Oxidation, Rats, Glutamic acid, Ammonia.

During oxygen poisoning the quantity of free ammonia increases considerably with a simultaneous decrease of free glutamine in the brain. In the protein fraction of the brain the amide content depends upon the state of the animal: its quantity increases during the somnolent state and decreases during convulsions and during the terminal state. The intensity of the oxydizing phosphorylation in the brain with experiments in vivo does not change in case of oxygenpoisoning. In experiments in vitro, a stimulation of the oxydizing phosphorylation is observed. (Author)

Krasil'nikova, V. I.
A CYTOCHEMICAL STUDY OF NUCLEIC ACIDS IN RABBIT BRAIN CELL DURING ONTOGENESIS. [1962] [10]p. 36 refs.
Order from OTS or SLA $1.10 62-14707

Trans. of Tsitologiya (USSR) 1960, v. 2, no. 1, p. 29-36.
Another trans. is available from OTS $4.00 in 60-11817, JPRS-2914, 15 Aug 60, 295p.

DESCRIPTORS: *Cytochemistry, *Nucleic acids, *Brain, Cells (Biology), Rabbits, *Embryos, Growth.

It was found that in the process of cytochemical maturation of nerve elements the nucleic acids and nucleoproteides, distributed diffusedly in the neuroblasts during the early period of embryogenesis, gradually become localized in the corresponding structures of mature neurons. The content of DNA is high during the early stages of development and decreases significantly at the moment of maturation of the nerve cells. Conversely the content of RNA increases with the growth of the body of the cell and this high content correlates directly with the volume of the cytoplasm. The cytochemical observations, in full agreement with biochemical data, proved the participation of DNA in the processes of early growth and differentiation of the tissue insuring its further development. RNA, in addition to the participation in the process of growth, apparently plays a part in assuring the specific function of the nerve cell during later stages of development. (Author)

Leshkevich, L. G.
EFFECT OF MUSCULAR ACTIVITY AND TRAINING ON THE EXCHANGEABILITY OF LIPOID PHOSPHORUS IN THE LIVER, MUSCLES, AND BRAIN. [1962] [7]p. 9 refs.
Order from OTS or SLA $1.10 62-14744

Trans. of Ukrayin[s'kyi] Biokhim[ichnyi] Zh[urnal] (USSR) 1959, v. 31, no. 4, p. 481-488.

DESCRIPTORS: *Exercise, *Muscles, *Phospholipids, *Brain, *Liver, Exchange reactions, Fatigue (Physiology), Training.

An investigation established that the exchangeability of lipoid phosphorus is highest in the liver, being lower in the muscles and, especially, in the brain. Muscular activity leads to an increase in the rate of renewal of lipoid phosphorus to a higher degree in the liver and to a lower in the brain. With an increase in duration of work the renewal rate of lipoid phosphorus in the liver and brain increases still more. During fatigue induced by prolonged work approaching the limit, the rate of exchangeability of lipoid phosphorus is reduced in all cases cases, approaching the level found in the control animals. With equal duration, dynamic work leads to a somewhat greater increase in the rate of exchangeability of lipoid phosphorus than static work. (Author)

Lipkan, N. F.
ELEMENTS OF RADIATION BIOCHEMISTRY, CHAPS. 3-5. 29 June 62, 58p. FTD-TT-62-584; AD-283 874.
Order from OTS $1.50 63-11511

Unedited rough draft trans. of mono. [Elementy Radiatsionnoi Biokhimii] Kiev, 1958, p. 79-126.

DESCRIPTORS: *Biochemistry, *Radiobiology, Radiation effects, Radiation injuries, Radiation sickness, Radiation damage, Digestive systems, Liver, Blood, Circulatory system, Blood coagulation, Hemopoiesis, Sex glands, Bone, Tissue (Biology), Skin, Endocrine glands, Nervous systems, Toxicity, Metabolism, Physiology, Nutrition, Radioprotective drugs, Biology, Radiochemistry.

Macowschi, E., Schelarin, K. and other.
PHOSPHATASE, CHOLINESTERASE AND CYTOCHROMOXIDASE ACTIVITY OF THE INTRACELLULAR FORMATIONS IN THE RAT BRAIN WITH VARIOUS FUNCTIONAL STATES. [1962] [12]p. 23 refs.
Order from OTS or SLA $1.60 62-14702

Trans. of [Ukrayins'kyi Biokhimichnyi Zhurnal] (USSR) 1958, v. 30, no. 1, p. 18-25.

DESCRIPTORS: *Phosphatases, *Cholinesterase, *Cytochrome oxidase, Rats, *Brain, Nervous system, Inhibition, Excitation, Metabolism.

Tests were made to determine if changes in the functional state of the nervous system may induce in the brain a change in the interrelationships between enzymes and the intracellular formations on which they are fixed. Investigations were conducted on rat brain in a normal state, and in a state of excitation and inhibition; the method of fractional centrifugation was applied, employing an isotonic saccharose solution (0.25 mol). The activity of acid and alkaline phosphatase, cholinesterase and cytochromoxidase was determined on suspensions of the fractions at 1430 g, 11820 g and the final supraprecipitate liquid. The enzyme activity of supraprecipitate liquid was higher than that of the other fraction and the change in the functional state of the brain conditioned the rise in the activity of these enzymes in all investigated fractions. The change in the functional state has no perceptible effect on the cholinesterase activity. As for cytochromoxidase, the unsystematic data obtained do not permit a sound interpretation. The changes noted in the phosphatase activity confirm the assumption that a change of the functional state of the nervous system may induce a change in the interrelationships between certain enzymes and the corpuscular formations to which they are attached. The data on cholinesterase show that a change in the functional state does not affect the interrelationships between all enzymes and the intracellular formations.

Ruggieri, P. de, Ferrari, C., and Gandolfi, C.
STEROIDS. X. 16-METHYLANDROSTANES: 16 α- AND 16 β-METHYLTESTOSTERONE, -DIHYDROTESTOSTERONE AND THEIR HOMOLOGS. [22 Nov 61] 11p. (15 refs. omitted).
Order from SLA $1.60 62-14958

Partial trans. (p. 691-705) of Gazz[etta] Chim[ica] Ital[iana] 1961, v. 91 [no. 6/7] p. 686-705.

DESCRIPTORS: *Steroids, *Androgens, *Testosterone, *Hormones, Methyl radicals, Synthesis.

There is described the preparation of 16α and 16β-methyltestosterones, -dihydrotestosterones and their 17α-methyl homologs by routes already in the literature for the non-methylated compounds. The steric configuration at C-16 and C-17 is clarified. (Author) (See also 62-14910)

Sciaky, Robert.
SYNTHESIS OF 6-SUBSTITUTED ANALOGS OF STEROID HORMONES. 2 July 61 [12]p. 21 refs.
Order from SLA $1.60 62-14911

Trans. of Gazz[etta] Chim[ica] Ital[iana] 1961, v. 91 [no. 5] p. 545-561.

DESCRIPTORS: Synthesis, Progesterone, *Hormones, *Steroids, Hydroxides, Alkoxy radicals, Chlorides, Substitution reactions.

Synthesis of 6-substituted derivatives of 17α-acetoxyprogesterone is described. The substituents are hydroxyl, methoxy and chloro. Also described is a new synthesis of 6-chloro-6-dehydro-17α-acetoxyprogesterone. (Author)

Sciaky, Robert.
SYNTHESIS OF 16β-METHYL-17 α-ACETOXYPROGESTERONE. [8 July 61] 5p. 7 refs.
Order from SLA $1.10 62-14959

Partial trans. (p. 567-570) of Gazz[etta] Chim[ica] Ital[iana] (Italy) 1961, v. 91 [no. 5] p. 567-570.

DESCRIPTORS: Synthesis, Hormones, *Steroids, *Progesterone, Methyl radicals, Acetyl radicals.

By the action of CH_3MgI on 16α, 17α-epoxy-5-pregnen-3β-ol-20-one-3-acetate-20-ethyleneketal there is obtained, after saponification of the ketal, 16β-methyl-17α-hydroxypregnenolone (I). I is then converted into 16β-methyl-17α-acetoxyprogesterone. (Author)

Tongur, V. S.
REGARDING D. L. FERDMAN'S BOOK "BIOCHEMISTRY". 1 Nov 62 [8]p. JPRS: 15999.
Order from OTS or SLA $1.10 62-33714

Trans. of Akademiya Nauk SSSR. Vestnik, 1962 [v. 32] no. 9, p. 94-95.

DESCRIPTORS: *Biochemistry, *Textbooks.

Tyunova, N. A.
THE PROTEIN COMPLEX OF THE WHEAT GRAIN AND ITS MODIFICATION AS A RESULT OR REMOTE HYBRIDIZATION (Belkovyi Kompleks Zerna Pshenitsy i Izmenenie Ego pri Otdalennoi Gibridizatsii). Aug 62 [45]p. 66 refs. RTS 2118.
Order from OTS or SLA $4.60 62-32493

Trans. of Glavnyi Botanicheskii Sad [Pushkinskoe]. Trudy (USSR) 1961, v. 8, p. 113-140.

DESCRIPTORS: *Proteins, *Wheat, Genetics, *Amino acids, Gliadins, Biochemistry.

The investigation of various forms of nitrogen in the grain of Lutescens-329 wheat, M-2 perennial wheat and couch grass (Agropyron glaucum) revealed an increased gliadin-glutelin ratio in the grain of couch grass. At the same time, the content of non-extracted nitrogen in couch grass flour was significantly higher than in flour from Lutescens-329 and M-2. The couch grass also differed in its reduced globulin content. The proteins of wheat and couch grass appeared in principle akin in their physico chemical properties, as was shown in the investigation of protein preparations by means of diffusion salting-out and by the determination of the viscosity and specific rotation of alcohol solutions of gliadin. No differences were found in regard to the N-terminal amino acids in the gliadins of Lutescens-329, M-2 perennial wheat and couch grass (Agropyron glaucum). We were able to identify in the gliadins of all three forms of cereals 8 N-terminal amino acids: aspartic and glutamic acids, serine, threonine, alanine, valine, phenyl alanine and leucine. (Author)

Yanovskaya, B. I. and Soloveva, L. Ya.
THE EFFECT OF LECITHIN ON THE ORGANISM. [1962] [8]p. 3 refs.
Order from OTS or SLA $1.10 62-14773

Trans. of Russian language article from unidentified source, 1952 or later, no. 1, p. 46-49.

DESCRIPTORS: *Phospholipids, Rats, *Ascorbic acid, Metabolism, Fats, *Brain, Heart, Biochemistry, Nutrition, *Body weight.

Yoshikawa, Mitsuyoshi.
OLIGOURONIDES OBTAINED BY ENZYMATIC CLEAVAGE OF ALGINATE, I, tr. by H. J. Kondo. 1962, 10p. 17 refs. NRCC Technical trans. 1042.
Order from NRCC $0.50 NRCC C-4164

Trans. of Seikagaku (Japan) 1961, v. 33, p. 794-798.

DESCRIPTORS: *Alginates, Decomposition, Enzymes, *Bacteria, Pseudomonas, *Saccharides, *Glucuronic acid, Paper chromatography.

Botany

LIFE SUPPORT SYSTEMS: SOVIET LITERATURE. Special rept. on Algae, Work Assignment no. 22. 1 Aug 62 [10]p. 1 ref. AID rept. 62-115; AD-283 004.
Order from OTS or SLA $1.10 62-32780

Abstract trans. of Botanicheskii Zhurnal (USSR) 1960 [v. 45] no. 9, p. 1350-1356; 1961 [v. 46] no. 3, p. 447-454 and ##463-465; Priroda (USSR) 1960 [v. 49] no. 6, p. 100.
##A complete trans. is available from OTS or SLA $3.60 in 62-24401, JPRS-13669, 30 Apr 62 [31]p.

DESCRIPTORS: *Life support, *Algae, Chemical analysis, Saccharides, Nitrogen compounds, Lipids, Pigments, Minerals, *Nutrition, Glucosides, Conferences, Space flight, Space medicine.

Contents:
Chemistry of diatoms (DIATOMEAE)
Nutritional value of diatoms
Chemistry of blue-green algae (CYANOPHYCEAE)
##All-Union Scientific and Technical Conference on the Algae Industry (no. 1) Arkhangel'sk, 17-20 Oct 60.

Petrovskii, V. V.
ON THE STRUCTURAL ELEMENTS OF PHYTOCOENOSES (O Strukturnykh Elementakh Fitotsenoeov). [1962] [31]p. (foreign text included) 50 refs. [CSIRO] Trans. no. 5624.
Order from OTS or SLA $3.60 62-32971

Trans. of Botanicheskii Zhurnal (USSR) 1960, v. 45, no. 3, p. 382-393.

DESCRIPTORS: *Plants, Ecology, Morphology, Adaptation (Physiology), Growth.

Synusiae as the elements of coenoses are practically never uniform morphologically but consist of a number of plant groups (combinations) spatially isolated from one another. The combinations are classified into types (the combinations of the same type being practically identical) according to the number of constituent life forms (one or more) and to the relationships between the plants of different life forms. The names proposed for these types are: the gregation (corresponding to Syn. 1^{o}); the aggregation (corresponds to Syn. 2^{o}); mixgregation and congregation (correspond to Syn. 3^{o}). (Author)

Microbiology

Koch, Gebhard
HEAT INACTIVATION OF POLIOVIRUS AND ISOLATED POLIOVIRUS NUCLEIC ACID (Uber die Hitzeinaktivierung von Polioviren und Isolierter Poliovirusnucleinsäure). [1962] 7p. (figs. omitted) 4 refs.
Order from SLA $1.10 62-16227

Trans. of Z[entral]bl[att für] Bakt[eriologie, Parasitenkunde und Infektionskrankheiten. Abt. 1. Originale] (East Germany) 1962, v. 184, no. 1/3, p. 165-168.

DESCRIPTORS: *Heat, *Poliomyelitis virus, Viability, *Nucleic acids, Stability.

Rybakov, N. I.
MICROBES AND THE COSMOS. 28 Nov 62 [28]p. 11 refs. JPRS: 16402.
Order from OTS or SLA $2.60 63-13323

Trans. of mono. Mikroby i Kosmos, Moscow, 1962, 32p.

DESCRIPTORS: *Bacteria, Cells (Biology), Cosmic rays, Radiation effects, Mutations, Culture media, Bacteriophages, *Satellite vehicle research, Space environmental conditions.

A semi-technical discussion of studies concerned with the effects of space environmental conditions on bacteria.

Usami, S. and others.
INDUCED MUTATIONS OF ASPERGILLUS NIGER BY NITROGEN MUSTARD TREATMENT. Apr 62, 6p. (7 figs. 2 tables omitted) 6 refs.
Order from SLA $1.10 62-16616

Trans. of Hakko Kyokaishi (Japan) 1960, v. 18, no. 5, p. 7-12.

DESCRIPTORS: *Mutations, *Molds, *Nitrogen mustards, Genetics, Morphology, Enzymes, Acetic acids, Proteases.

From nitrogen mustard treatment of a parent strain, Aspergillus niger WU-2223L, which is high in acetic acid-producing ability, about 370 artificial mutants were obtained. Among these, there were some which were more powerful in the production of acid and proteinase. No correlation was observed between the type of mutation and the physiological property, but it was found that a strain which is high in proteinase-producing ability is generally high in acid-producing ability. Morphologically, there was little variation in the sizes of the various organs between the parent strain and the mutants. Similarly, there was little difference in enzymic properties, although it could be reasoned that a difference in activities resulted from a quantitative difference in proteinase. (Author)

Zampach, Adolf.
APPARATUS FOR DETERMINING THE NUMBER OF MICROBES IN THE AIR. 29 Nov 62 [7]p. JPRS: 16407.
Order from OTS or SLA $1.10 63-13362

Trans. of Czechoslovakian patent 93066, cl. 30 h, 14, appl. 22 Jan 58 (PV 334-58) validity from 22 Jan 58, deposited 15 Apr 59, pub. 15 Dec 59.

DESCRIPTORS: *Microorganisms, Detection, Test equipment, Design, Culture media, Rotating bands.

Microbes from the incoming air are caught onto a constantly moving band covered by some type of solid growth medium. The band is placed on a cylindrical drum that is rotating with a definite speed which can be regulated according to need, most suitably in such a manner that the circumference of the drum makes a circle around its axis once during 12 hours. To the drum there are attached in addition to the band with growth medium for the culture of all microbes also some additional bands with elective growth media suitable for the culture of some definite microbial species. The principal characteristic of the invention is the possibility of a continuous testing method throughout any period of time that is desired. (Author)

Pathology

TREATMENT OF BURNS. 8 Oct 62 [35]p. 46 refs. JPRS: 15591.
Order from OTS or SLA $3.60 62-33283

Trans. of Klinicheskaya Khirurgiya (USSR) 1962, no. 5(245) p. 3-22 and 86.

DESCRIPTORS: *Burns, Therapy, *Surgery, Skin, Transplantation, Copper, Manganese, Liver, Blood, Photoelectric effect, Radiation effects.

Contents:
Surgical treatment of thermal burns, by V. D. Bratus'
Characteristics of sudden burns: experimental research, by O. S. Misharev
Skin grafting in thermal burns, by M. V. Knyazevskii
The effect of thermal burns of the skin on the copper and manganese content of the blood and the liver, by V. R. Soroka
Impulse phototherapy of burns, by V. P. Sorochinskii.

Isakova, G. V., Lukashevich, L. P. and others.
CHARACTERISTICS OF THE "CLIMATE COMPLEX" IN THE BIOTRON [AND] CONVENTIONS, CONFERENCES AND MEETINGS. 3 Dec 62 [16]p. 15 refs. JPRS: 16486.
Order from OTS or SLA $1.60 63-13285

Trans. of Vrachebnoe Delo (USSR) 1962, no. 9, p. 114-118 and 151-153.

DESCRIPTORS: *Climatic factors, Simulation, *Medical equipment, Therapy, Diseases, Conferences, Medical personnel, Thesis, Pathology.

Jonkers, G. H.
THE USE OF VARIDASE IN OPHTHALMOLOGY (Die Anwendung von Varidase in der Augenheilkunde). [1962] [5]p. 2 refs.
Order from SLA $1.10 62-16225

Trans. of Klinische Monatsblätter für Augenheilkunde (West Germany) 1961, v. 139, no. 1, p. 26-29.

DESCRIPTORS: Drugs, Opthalmology, Diseases, *Eye, *Streptococcus infections, *Streptolysins, Therapy, Kinases.

Lapina, A. I. and Massino, S. V., eds.
FUNDAMENTAL STAGES IN THE DEVELOPMENT OF THE CONTROL OF TUBERCULOSIS IN THE USSR. 3 Dec 62 [24]p. JPRS: 16467.
Order from OTS or SLA $2.60 63-13282

Trans. of mono. Epidemiologiya i Organizatsiya Bor'by s Tuberkulesom (Epidemiology and Organization of Control of Tuberculosis) v. 4, Moscow, 1962, chap. 1, p. 9-25.

DESCRIPTORS: *Diseases, *Mycobacterium tuberculosis, Control, Public health, *Antitubercular agents, *Hospitals, Vaccines.

A historical survey of the various Russian schools of thought involved in tuberculosis research from the first decade of this century to the present.

Merkov, A. M., Tserkovnii, G. F., and Kaufman, B. D., eds.
THE DISEASE RATE AND DEATH RATE OF THE POPULATION OF THE USSR FOR MALIGNANT NEOPLASMA. 21 Nov 62 [57]p. JPRS: 16296.
Order from OTS or SLA $5.60 63-13264

Trans. of mono. (brochure) Zabolevaemost' i Smertnost' Naseleniya SSSR ot Zlokachestvennykh Novoobrazovanii, Leningrad, 1962.

DESCRIPTORS: Diseases, *Vital statistics, Population, *Cancer.

This collection is composed of materials of annual statistical reports on the disease rate from cancer and other malignant neoplasms and summary reports of oncological facilities of the union republics, obtained from the department of medical statistics of the USSR Ministry of Health. The compilers made use of materials of the Central Statistical Directorate attached to the USSR Council of Ministers on the number of deaths from cancer and other malignant neoplasms. (Author)

Portnov, F. G.
AEROIONS AND THEIR USE IN MEDICINE: SELECTED PORTIONS. 26 Nov 62 [36]p. JPRS: 16339.
Order from OTS or SLA $3.60 63-13328

Trans. of mono. Aeroiony i Ikh Lechebnoe Primenenie, Riga, 1961, p. 18-42, 56-69, 96-98, 107.

DESCRIPTORS: *Atmosphere, *Ionization, Therapy, Ions, *Medicine, Generators, Radiobiology, *Adaptation (Physiology), Physiology, *Medical equipment.

Contents:
Natural ionization of the air and the effect of atmospheric ions on the organism
Generators of aeroions
Mechanism of the physiological action of aeroions and physiological reactions of the organism during aeroionization
Conclusion
Table of contents.

Voskresenskii, M. P.
ON THE PROBLEM OF THE LESIONS OF THE URACHUS IN ADULTS (K Voprosu o Zabolevaniyakh Urakhusa u Vzroslykh) tr. by Tatiana Boldyreff. 24 July 62, 19p.
Order from OTS or SLA $1.60 62-32770

Trans. of Urologiya (USSR) 1961, v. 26, p. 11-17.

DESCRIPTORS: *Congenital anomolies, Pathology, *Urinary tract, Diagnosis, Tumors, X-rays, Therapy.

Lesions of the urachus are rare and, therefore, single surgeons and urologists cannot accumulate sufficient experience in their recognition, diagnosis and treatment. Sudden inflammatory processes in the urachus may simulate acute surgical involvements of the abdominal cavity. Physicians of various specialties, and in particular surgeons and urologists, must be familiar with the differential diagnoses of the diseases of the urinary duct. For complication of observations on the remote results of surgical treatment of the tumors of the urachus, such patients must be followed up in dispensary observations. In this manner, it may be possible to determine the effect of the use of Roentgen therapy for various tumors, the frequency and localization of recurrences of the tumor or its metastases, expediency or possibility of repeated surgical interventions. (Author)

Pharmacology and Toxicology

Cahen, R. and Boucherle, A.
COMPARATIVE STUDY OF NICOTINIC ESTERS AND CODEINE SALTS OF MORPHOLINOETHYLMORPHINE. [1962] 2p. 9 refs.
Order from SLA $1.10 62-16261

Trans. of Soc[iété de] Biol[ogie et de ses Filiales]. Compt[es] Rend[us des Seances] (France) 1961, v. 155 [no. 5] p. 1034-[1036].

DESCRIPTORS: *Drugs, Pharmacology, *Nicotinic acid, Esterfication, *Codeine, Alkaloids, Morphine.

The nicotinic acid esters of codeine and of morpholinoethylmorphine are more toxic than the salts (hydrochlorides) of these alkaloids. The antitussive and analgesic effects of the esters of codeine and of morpholinoethylmorphine are not more pronounced nor of longer duration than those of the corresponding salts. The secondary effects, depressive, vascular, respiratory, constipating and allergic, are of the same intensity. With regard to codeine and morpholinoethylmorphine esterification with nicotinic acid seems to have no particular advantage. (Author)

Creutzfeldt, Werner; Deuticke, Ursula; and Söling, Hans-Dieter.
POTENTIATION OF THE EFFECT OF EXOGENOUS INSULIN BY N'-4-METHYLBENZENESULFONYL-N'-BUTYLUREA AND N_1-n-BUTYL-BIGUANIDE IN EVISCERATED ANIMALS (Potenzierung der Wirkung von Exogenem Insulin durch N-(4-Methylbenzolsulfonyl)-N'-Butylcarbamid und N_1,n-Butylbiguanid beim Eviscerierten Tier). [1962] 21p. (figs. omitted) 36 refs
Order from SLA $2.60 62-16216

Trans. of Klin[ische] W[ochen]schr[ift] (Germany) 1961, v. 39, no. 15, p. 790-795.

DESCRIPTORS: Drugs, *Therapy, *Diabetes, Insulin, Blood sugar, Adrenal glands, Secretion, *Orinase, *Guanidines, *Chlorpropamide.

In eviscerated, nephrectomized rats, sulfonylureas (tolbutamide and chlorpropamide) do not decrease the blood sugar or raise glucose consumption. Tolbutamide (D 860) definitely increases the insulin sensitivity of eviscerated rats, i.e. it has an insulin-potentiating effect which is localized in the periphery. This finding cannot be explained. Clinical experience negates the fact that it plays an important part in the mechanism of action of the sulfonylureas. N_1-n-butylbiguanide (W 37) does not decrease the blood sugar of eviscerated rats with and without adrenal glands nor increase their

glucose requirement. W 37 increases the insulin sensitivity of the eviscerated rats to the same extent as D 860. In contrast to D 860, W 37 brings about more pronounced muscle glycogenolysis. It is doubtful whether the potentiation of the insulin effect by the biguanides is of essential significance to their mechanism of action. (Author)

Frankl, J. and Vazsonyi, Z.
TREATMENT OF PSORIASIS WITH BUCARBAN (CARBUTAMIDE). [1962] 7p. (refs. omitted).
Order from SLA $1.10 62-14982

Trans. of Borgyogyaszati es Venerologiai Szemle (Hungary) 1959, v. 13, no. 2, p. 88-90.

DESCRIPTORS: *Skin, *Diseases, *Drugs, Therapy, Blood sugar, Ointments, Sulfonamides, *Amides.

Only in a few cases did the authors observe any symptomatic improvement in response to the treatment of psoriasis with Bucarban. They examined the course of the blood-sugar levels on a fasting stomach as well as under glucose load. They attribute the results obtained to the insulin-like effect of Bucarban, which improves the general condition and increases appetite. (Author)

Giambrone, I. and Cannada, E.
CHANGES IN THE ARTERIOVENOUS BLOOD SUGAR CURVE AFTER ORAL GLUCOSE LOADS RESULTING FROM TREATMENT WITH CARBUTAMIDE AND TOLBUTAMIDE IN DIABETIC SUBJECTS. 6 Mar 62, 3p.
Order from SLA $1.10 62-14980

Trans. of Minerva Medica (Italy) 1958, v. 49, no. 32, p. 1527-1528.

DESCRIPTORS: *Drugs, Blood sugar, *Orinase, *Diabetes, Glucose tolerance.

Hasselblatt, A. and Schmieta, J.
ACTIVATION OF BONDED INSULIN BY TOLBUTAMIDE. [1962] 5p. (table, refs. omitted).
Order from SLA $1.10 62-16217

Trans. of Klin[ische] W[ochen]schr[ift] (Germany) 1961, v. 39, no. 17, p. 910-911.

DESCRIPTORS: *Drugs, Therapy, *Diabetes, Insulin, *Orinase.

The bonding of insulin to insulin-bonding antibodies in vitro is inhibited by the presence of tolbutamide in the incubation medium. Insulin already bonded to antibodies becomes reactivated by tolbutamide. This effect is dependent upon the concentration of the tolbutamide in the incubation medium. A significant effect is observed with 22 mg tolbutamide/100 ml. The carbonic acid of the tolbutamide, which in vivo initiates no hypoglycemia, also does not reactivate bonded insulin in vitra. (Author)

Hernandez y Silva, J.
GENERAL CONSIDERATIONS AND RESULTS OF A TRIAL IN AMEBIASIS WITH A NEW INTESTINAL ANTISEPTIC (Consideraciones Generales y Resultados del Ensayo en Amibiasis con un Nuevo Antiseptico Intestinal). [1962] 4p. 6 refs.
Order from SLA $1.10 62-14321

Trans. of Sem[ana] Med[ica de] Mexico, 1961, v. 30, 15 Sep, p. 290-291.

DESCRIPTORS: *Amoeba, Parasitic infections, Therapy, *Intestine, *Drugs, Cuinones, Quinolines, Toxicity.

Mexaform (a combination of 20 mg of 4,7-phenanthroline-5,6-quinone and 200 mg of iodochlorhydroxyquinoline was tried in 12 patients with symptoms of chronic colitis. Stool examinations for parasites by concentration and flotation according to Faust showed in all these patients the presence of cysts or trophozoites of E. histolytica. The stool examinations for parasites were negative at the end of the treatment and included the 20th and the 75th day in cases where it was possible to perform them; this proves a definite cure. Mexaform also exhibited an energetic action on the protozoa Chilomastix mesnili and Trichomonas intestinalis. The marked antidiarrheic effect attributable to the synergistic action of the combination of the antibacterial and antiamebic action exerted by both components of Mexaform was demonstrated.

Korshov, V. A.
EFFECT OF AMINAZINE UPON RESPIRATION AND OXYDIZING PHOSPHORYLATION IN ANIMAL TISSUE. [1962] [6]p. 8 refs.
Order from OTS or SLA $1.10 62-14697

Trans. of mono. [Voprosy Eksperimental'noi Patologii] (Problems of Experimental Pathology) [ed. by] S. N. Braines, Moscow, 1959, chap. 23, p. 253-259.

DESCRIPTORS: *Chlorpromazine, Pharmacology, Drugs, *Respiration, Oxidation, *Phosphorylation, Animals, Tissues (Biology), Adenosine phosphate.

Kozlov, Valentin Mikhailovich and Turovskii, Valentin Dmitrievich.
BERYLLIUM: TOXICOLOGY, CLINICAL ASPECTS OF DISEASES, LABOR HYGIENE, CHAPS. 3, 5-6.
3 Dec 62 [35]p. 27 refs. JPRS: 16496. NASA N63-10540
Order from OTS or SLA $3.60 63-13366

Trans. of mono. Berillii: Toksikologiya, Klinika Porazhenii, Gigiena Truda, Moscow, 1962, p. 19-31 and 84-98.

DESCRIPTORS: *Toxicity, *Berylium, Toxic tolerances, Industrial medicine, *Atmospheric pollution, Decontamination, Inhibition, *Wastes (Industrial), Disposal.

Contents:
Experimental toxicology of beryllium and its compounds
Labor hygiene in working with beryllium
Protection of the external environment from beryllium contamination.

Krumml, Otto.
PROCESS FOR PREPARING MEDICINAL BEE HORMONES, tr. by F. H. B. 5 Mar 62, 5p.
Order from OTS or SLA $1.10 62-23738

Trans. from photoprint of German patent application K-11,714/30h/A 208, announced 2 Oct 52.

DESCRIPTORS: Drugs, Preparation, *Hormones, *Bees, Eggs, Dehydration.

A process for preparing and preserving hormone-containing cephalic gland extract of bees, characterized in that the queen bee cell content of beehives is collected 4 or 5 days after removal of the queen bee and preserved by drying is discussed. The removal and collection of the queen bee cells, after cultivation frames with foreign eggs are suspended, is repeated. The collected active substance extract is cautiously dried in thin layers at a drying temperature of not much higher than about 35°. The drying process is interrupted when the active substances concentrate contains still about 10% moisture. (over)

Laborit, H., Weber, B. and others.
THE EXPERIMENTAL STUDY OF SOME SALTS OF ASPARTIC ACID Preliminary rept.; Paper presented at Congress for [Anesthesiology] (no. 9) 22 May 58. [1962] 14p. (figs. tables refs. omitted).
Order from SLA $1.60 62-16219

Trans. of Anesthesie, Analgesie, Reanimation (France) 1958, v. 15, no. 3 [p. 480-494].
Another trans. is available from SLA $2.60 as 62-14589 [1962] 21p.

DESCRIPTORS: *Amino acids, *Aspartic acid, Salts, Ions, *Toxicity, Neuromuscular transmission, Traumatic shock, Respiration, Fatigue (Physiology).

A report is made on the action of certain salts of aspartic acid (K^{+}, Mg^{++}, Fe^{+++}) in myocardial infarction, in fatigue, in hypercapenia and in hyperammoniemia of hemorragic shock. The biological mechanisms responsible for the facts observed are discussed, and it is shown that in spite of their probable multiplicity and their complexity they come within a coherent framework. A working hypothesis is formulated which appears to be capable of directing the use in different therapeutic applications.

Lopez-Fernandez, J. R.
THE "DIABETIC STATES" OF PREGNANCY AND THEIR TREATMENT WITH SULFANILURIA DERIVATIVES (PRELIMINARY REPORT). [1962] 10p. 21 refs.
Order from SLA $1.10 62-16038

Trans. of Clinica y Laboratorio (Spain) 1960, v. 69, p. 347-352.

DESCRIPTORS: *Diabetes, *Pregnancy, Therapy, Drugs *Orinase.

Loubatieres, A., Alric, R., and Mariani, M.-M.
THE ROLE OF THE PANCREAS IN THE INHIBITING ACTION EXERTED BY THE HYPOGLYCEMIC SULFONAMIDES ON THE DIABETOGENIC EFFECT OF HYPOPHYSEAL SOMATOTROPIN. [1962] 3p. [footnotes omitted].
Order from SLA $1.10 62-14979

Trans. of Societé de Biologie [et de ses Filiales]. Compte[s] Rendus de[s] Seances (France) 1961, v. 155, no. 2, p. 349-350.

DESCRIPTORS: *Pancreas, Inhibition, *Drugs, Therapy, *Diabetes, Pituitary gland, Secretion, Hypoglycemia, Growth substances, *Orinase.

The hypoglycemic sulfonamides, D860 and P607, diminish the diabetogenic effects of the somatotropic hormone of the hypothesis when a sufficient quantity of healthy endocrine pancreas is present. This illustrates the importance of the endocrine pancreas in the anti-diabetic action of these compounds which is once more demonstrated by these experiments. (Author)

Mainoli, S., Marigo, S. and others.
CHANGES IN THE TOTAL LIPIDS AND LIPID FRACTIONS OF DIABETICS INDUCED BY TOLBUTAMIDE. [1062] [11]p.
Order rrom SLA $1.60 62-14956

Trans. of Soc[ietà] Med[ico]-Chir[urgica] Pavia. Boll[ettino] (Italy) 1957, v. 71, p. 921-936.

DESCRIPTORS: *Diabetes, *Lipids, Drugs, *Orinase, Blood chemistry, Fatty acids, *Metabolism.

In 14 diabetics the behavior was studied of the blood fats following treatment with tolbutamide. The lipid fractions profoundly altered by the disease, tend to become distinctly normalized provided that the diabetic picture responds favorably to therapy. In particular, it was noted that an increase in the phosphatides occurred, along with a reduction of the total lipids, elevated glycerides, and especially of fraction A of the steroids whose components show a distinct rearrangement which includes a decrease in the percentage of cholesterol esters especially elevated before treatment. These changes, unquestionably secondary to the regression of the changes in carbohydrate metabolism, are a further demonstration of the real therapeutic efficacy of the new hypoglycemic drugs. (Author)

Mel'nikov, N. N., Rokitskaya, M. S., and Bekker, Z. E.
STRUCTURE AND GERMICIDAL PROPERTIES OF ORGANIC COMPOUNDS. I. DERIVATIVES OF HYDROXYDIPHENYL. [1962] 3p. 2 refs.
Order from OTS or SLA $1.10 62-16815

[Abstract] trans. of Zhurnal Prikladnoi Khimii (USSR) 1943, v. 16, no. 9/10, p. 426-432.
Another abstract trans. is available from OTS or SLA $1.10 in 62-14153 [1961] 7p. and a complete trans. is available from SLA as RT-3602, 12p.

DESCRIPTORS: Chemical analysis, *Bactericides, *Diphenyl, *Hydroxides, Chlorides, Effectiveness, Staphylococcus, Streptococcus.

Onufrievich, Vladimir.
HIGH POLYMER IODINE COMPOUNDS AND THEIR GERMICIDAL AND THERAPEUTIC PROPERTIES: RESUME AND CONCLUSIONS. 19 Nov 62 [5]p. JPRS: 16251.
Order from OTS or SLA $1.10 63-13303

Trans. of mono. Soedineniya yoda s Vysokopolimerami, ikh Antimikrobnye i Lechebnye Svoistva, Moscow, 1962, p. 164-166.

DESCRIPTORS: Drugs, *Disinfectants, *Iodine compounds, Polymers, Iodides, *Starches, *Vinyl alcohol, Molecular structure.

A summary is presented of studies on iodine containing high polymers, particularly iodide starch and iodide polyvinyl alcohol. Emphasis is placed on the antiseptic properties of the compounds and the relationship of their biological effects to their chemical structure.

Reinhold, H., Rood, M. de, and Kenis, Y.
COMBINED EFFETS ON ANGIOTENSIN AND CYCLOPROPANE ON HEART RHYTHM (Effets Combines de l'angiotensine et du Cyclopropane sur le Rythme Cardiaque). Paper presented at the World Congress of Anesthetists (no. 2) Toronto, 4-10 Sep 60. [1962] 14p. 23 refs.
Order from SLA $1.60 62-16114

Trans. of Acta Anaesth[esiologica] Belg[ica] 1960, v. 11 [no. 2] p. 163-176.

DESCRIPTORS: *Vasomotor drugs, Epinephrine, *Anesthesia, Blood pressure, *Heart, *Rhythm, *Hypertensin, *Propanes.

Sixty hypertensive tests were conducted on 12 dogs anesthetized with cyclopropane, with equipotent doses of these two vasopressor substances. Examination of the electrocardiographic tracings has demonstrated that angiotensin, like norepinephrine, produces ventricular arrhythmias under these conditions. These are, however, less frequent and less severe with angiotensin than with norepinephrine. Angiotensin possesses in common with the adrenergic substances that produce ventricular arrhythmias with cyclopropane, the property of having a positive inotropic and chronotropic effect on the heart. Probably we can attribute to this property the disturbances of rhythm induced by the vasopressors combined with the anesthetics which sensitize the myocardium to the arrhythmias. (Author)

Rotmistrov, M. M. and Kulik, G. V.
DICHLORIODIC DERIVATIVES OF SALICYLANILIDE AND MONOHALOID SALICYLANILIDES: NEW SYNTHETIC ANTIMICROBIAL SUBSTANCES. 30 Nov 62 [7]p. 6 refs. JPRS: 16448.
Order from OTS or SLA $1.10 63-13311

Trans. of Akademiya Nauk URSR, Kiev. Dopovidi, 1962, no. 7, p. 955-957.

DESCRIPTORS: *Drugs, Antibiotics, *Anilides, Aniline, Salicylic acids, Halogen compounds, Chlorine compounds.

The newly synthesized anti-microbial material, N-ICl_2 salicylanilide, which we have described, has an antibiotic-like effect in a sufficiently broad anti-microbial spectrum. They approximate antibiotics not only in their strong anti-microbial action, as is manifest at high dilutions, but also in selectivity of action, fine specificity and even low toxicity for animals. This research indicates that N-ICl_2 derivatives of salicylanilides and halogen salicylanilides are prospective anti-microbial medical materials. (Author)

Schmidt, Ernst.
NOTES ON CERTAIN THIOUREAS. [1962] 7p. 5 refs.
Order from SLA $1.10 62-14920

Trans. of Archiv der Pharmazie (Germany) 1897, v. 235, p. 435-441.
Another trans. is available from SLA mi$1.80, ph$1.80 as 61-10418[1961] 7p.

DESCRIPTORS: Drugs, *Thiourea, Toxicity, Molecular structure.

Shevlyakov, L. V.
EFFECT OF T-1 BRAND UPON THE SKIN. 6 Nov 62 [4]p. JPRS: 16055.
Order from OTS or SLA $1.10 62-33720

Trans. of Voenno-Meditsinskii Zhurnal (USSR) 1955, no. 5, p. 83-84.

DESCRIPTORS: *Aviation fuels, *Sensitivity, Toxicity, *Skin, Injuries.

Sokolovskii, V. V.
EFFECT OF ANTICHOLINESTERASE SUBSTANCES UPON THE CONTENT OF RIBONUCLEIC ACIDS IN THE NERVE CELL. [1962] [6]p. 9 refs.
Order from OTS or SLA $1.10 62-14761

Trans. of Tsitologiya (USSR) 1959, v. 1, no. 4, p. 431-[435].
Another trans. is available from OTS $3.00 in 60-11326, JPRS-2287, 4 Mar 60, 193p.

DESCRIPTORS: *Cholinesterase, Inhibition, *Nucleic acids, *Nerves, Drugs, Cytology.

Votchal, B. E. and Solov'ev, V. N.
ANTIHISTAMINES (Protivogistaminnye Preparaty). [1962] 15p. 33 refs. NIH no. 189.
Order from OTS or SLA $1.60 62-23530

Trans. of Klinicheskaya Meditsina (USSR) 1955, v. 33, no. 12, p. 3-12.

DESCRIPTORS: *Antihistaminics, Drugs, Pharmacology Therapy, Diseases, Skin, Allergy, Histamines, Inhibition.

Werner, M., Hitz, A. and others.
METABOLIC STUDIES WITH AN ANABOLIC AGENT IN MAN. (Stoffwechseluntersuchungen am Menschen mit Einem Wirkstoff (Methandrostenolon)). [1962] 26p. 89 refs.
Order from SLA $2.60 62-16123

Trans. of Klin[ische] W[ochen]schr[ift] (Germany) 1961, v. 39 [no. 19] p. 998-1006.

DESCRIPTORS: *Drugs, *Metabolism, *Proteins, *Dianabol, Albumins, Plasma proteins, Bones.

Methandrostenolone distinctly improves the general condition of patients. The protein-anabolic effect can be proven by a positive nitrogen balance and weight gain. With methandrostenolone the serum albumin concentration falls, while the alpha2 globulin rises. The blood sugar values of a double glucose load are uninfluenced. There is no regular effect on basal metabolism. Methandrostenolone can reduce the steroid excretion in the urine. The anabolic effect on the bone matrix was proven by bone biopsies. No improvement in limited renal function can be found. (Author)

Zhemerdei, A. I.
DATA ON THE TOXICOLOGY OF TETRAFLUOROETHYLENE. [1962] [12]p. 6 refs.
Order from OTS or SLA $1.60 62-25405

Trans. of Sanit[arno]-Gigien[icheskii] Med[itsinskii] Inst[itut]. Trudy (USSR) 1958, v. 44, p. 164-176.

DESCRIPTORS: *Toxicity, *Fluorides, *Ethylenes, Polymers, Stability, Pyrolysis, Phosgene poisoning.

Inhalation of the tetrafluoroethylene monomer (in acute experiments on rabbits and white rats) results in hyperemia of the organs, especially the brain, hemorrhage of the lungs and spleen, and dystrophic changes in the kidneys. The lungs exhibit alternating areas of emphysema and atelectasis and desquamation of the epithelium of the bronchi and larger bronchia. The time after which the animals succumb to the effects of the tetrafluoroethylene monomer depends directly upon the concentration and purity of the substance. The mortality threshold is 2.5 vol. % for white rats and 4 vol. % for rabbits. Acute intoxication by products of the depolymerization and pyrolytic decomposition of polytetrafluoroethylene (experiments on cats, rabbits, white mice and white rats) is accompanied by severe irritant action on the mucosa of the upper respiratory tract. When they die early, the animals succumb with pulmonary edema evident; when death occurs later, pneumonia also sets in. Moreover the cats exhibit dystrophic changes in the kidneys. The pathology observed after inhalation of the products of thermal decomposition of the polymer is evidently due to the presence of difluorophosgene, perfluoroisobutylene, and other highly toxic hydrocarbons in the pyrolysis gases. (Author)

Radiobiology

MEDICAL RADIOLOGY, 1962, VOL. 7, NO. 8: [SELECTED] ARTICLES. 19 Nov 62 [31]p. 14 refs. JPRS: 16242.
Order from OTS or SLA $3.60 63-13360

Trans. of Meditsinskaya Radiologiya (USSR) 1962, v. 7, no. 8, p. 59-68 and 100-101.

DESCRIPTORS: *Radiobiology, *Cells (Biology), Ionization, *Radiation effects, *Radiation sickness, Medicine, *Bioelectronics.

Contents:
Cell immunity changes during chronic, sustained ionizing radiation, by P. N. Kiselev and P. A. Buzini
The production of Morgan's toxicoinfection in monkeys in relation to acute radiation sickness, by L. A. Yakovleva and others
The All-Union Conference on the Application of Radioelectronics in Biology and Medicine (No. 2) Leningrad, 24-28 Apr 62, by Yu B. Mandel'tsvai.

REPORTS OF THE ACADEMY OF SCIENCES USSR, 1962, VOL. 145, NO. 1: [SELECTED] ARTICLES. 26 Nov 62 [19]p. 46 refs. JPRS: 16333.
Order from OTS or SLA $1.60 63-13293

Trans. of Akademiya Nauk SSSR. Doklady, 1962, v. 145, no. 1, p. 195-205.

DESCRIPTORS: Radiobiology, *Tissues (Biology), Skeleton, Muscles, *Radiation injuries, Countermeasures, Traumatic shock, *Radioprotective drugs, Drugs, Oxygen, Physiology, Respiration, *Photosynthesis, Optics, Fluorescence, Temperature.

Contents:
Biological protection of skeleto-muscular tissue against injury from ionizing radiation, by A. N. Studitskii and M. F. Popova
The dependence of anti-radiation efficiency of protective substances on oxygen content in inhaled air and in tissues, by E. Ya. Graevskii and M. M. Konstantinova
The influence of temperature on the effectiveness of the primary process of light energy conversion during photosynthesis, by L. A. Tumerman and A. B. Rubin.

Fumagalli, Z., Lupo, M., and Pisani, G.
FIRST RESULTS OF MORPHOLOGICAL AND HISTOCHEMICAL INVESTIGATIONS ON THE LIVER OF THE TOTALLY X-RAY-IRRADIATED RAT WHICH WAS PROTECTED OR NOT WITH CYSTEAMINE (Primi Risultati di Ricerche Morfologiche ed Istochimiche sul Fegato del Ratto Pan-Roentgenirradiato Protetto e non con Cisteamina) tr. by W. H. Everhardy. 27 June 60. 11p. (6 figs. omitted) 7 refs. NIH no. 6-21-60.
Order from OTS or SLA $1.60 60-19485

Trans. of reprint of Minerva Nucleare (Italy) 1958, v. 2, no. 9, p. 238-244.

DESCRIPTORS: Morphology, Histology, *Liver, *Radiation effects, Inhibition, *Radioprotective drugs, Metabolism, Glycogen, Ascorbic acid, Esterases, Phosphorus compounds, Amines, *Cysteamine.
The authors studied the structure of the chondriome, the alkaline-phosphomonoesterase activity and the content of glycogen and ascorbic acid of the liver of an irradiated rat protected or not with cysteamine. (Author)

Kazhinskii, Bernard Bernardovich.
BIOLOGICAL RADIOCOMMUNICATIONS (Biologicheskaya Radiosvyaz'). [1962] [6]p. [USASIA] Trans. log no. 1140.
Order from OTS or SLA $1.10 62-32637

Trans. of Nauka i Zhizn' (USSR) 1960 [v. 27] no. 11, p. 46-47.

DESCRIPTORS: *Bioelectronics, *Brain, Radio waves, *Radio communication systems, Amplifiers, Hypnosis, Radiobiology, Plants, Animals, Tissues (Biology).

It is assumed that the brain radiation which is responsible for the distant transmission of thoughts occurs on wavelengths in the centimeter, millimeter, and micron ranges. The combined action of a number of radiation waves from the brain centers during the thinking process is capable of creating corresponding signals in the brain centers of a second person. The possibility of creating a device for amplification of brain radiation waves which could establish reliable communications between humans is indicated. Generation of artificial waves similar to those produced by brain centers and designed to have a direct influence on the mental activity of people is also considered to be entirely possible. Also discussed are mitogenic interactions (interactions between human and plant tissue) electronic hypnotizers and thinkophones. (Author)

Kholodov, Yu. A.
THE EFFECT OF AN ELECTROMAGNETIC FIELD ON THE CENTRAL NERVOUS SYSTEM. 9 Aug 62 [7]p. FTD-TT-62-1107; AD-284 123.
Order from OTS or SLA $1.10 62-33081

Unedited rough draft trans. of Priroda (USSR) 1962 [v. 51] no. 4, p. 104-105.

DESCRIPTORS: *Electromagnetic waves, *Nervous system, Bioelectronics, Superhigh frequency, Pathology, *Radiation injuries, Brain.

Kozlova, A. V.
TRAINING OF MEDICAL RADIOLOGY PERSONNEL. 23 Nov 62 [11]p. JPRS: 16320.
Order from OTS or SLA $1.10 63-13258

Trans. of Vestnik Rentgenologii i Radiologii (USSR) 1962, v. 37, no. 1, p. 77-79.

DESCRIPTORS: *Medical personnel, *Training, Radioactivity, Therapy, Radiobiology.

A plan for training medical personnel in radiation therapy and diagnostic techniques is outlined. Separate programs are planned for training in roentgenology and radiation therapy.

Lipkan, M. F., Baraboi, V. A., and Lukashova, R. G.
EFFECT OF X-RAY RADIATION AND PROPHYLACTIC TREATMENT WITH PROPYL GALLATE ON NUCLEIC ACID CONTENT IN RAT ORGANS. 12 Sep 62 [8]p. 6 refs. FTD-TT-62-918. AD-286 580
Order from OTS or SLA $1.10 62-33627

Unedited rough draft trans. of Ukrayins'kyi Biokhimichnyi Zhurnal (USSR) 1962, v. 34, no. 2, p. 167-175.

DESCRIPTORS: X-rays, Radiation effects, *Nucleic acids, *Radioprotective drugs, Stimulation, *Gallium compounds, *Propyl radicals, Rats.

In the present investigation preventive doses of propyl gallate were administered and the effect on nucleic metabolism in the irradiated organism was studied. Propyl gallate (PG; normal propyl ester of gallic acid), when injected 30 min before irradiation, reduced death incidence by 40-43% in animals exposed to a lethal radiation dose). New data were obtained on the effect of this compound on the dynamics of nucleic metabolism in the most radiation-sensitive rat organs-spleen, mucosa of the small intestines, testicles and liver. The study contributed substantially to the understanding of patterns underlying the activity of propyl gallate as a radiation protection agent. (Author)

Morczek, A. and Neumeister, K.
PROBLEMS OF SURGICAL TREATMENT FOR INJURIES CAUSED BY RADIATION. 7 Nov 62 [12]p. 29 refs. JPRS: 16072.
Order from OTS or SLA $1.60 62-33683

Trans. of Deutsche Gesundheitswesen (East Germany) 1962, v. 17, no. 30, p. 1266-1270.

DESCRIPTORS: *Surgery, Injuries, Radiation effects, *Radiation injuries, Therapy.

Because of the complexity of the mechanism of damage, injuries suffered as a result of nuclear catastrophes are of a special nature. Treatment must be based on a correlation of surgical and nuclear medical measures which take into account the conditions of the wound, the amount of radiation received and the clinical picture of the radiation illness. These tasks can be solved only by the cooperation of surgeons, nuclear physicians and physicists. The aim of this work was to provide some guiding lines for such a cooperation. (Author)

Roginskii, S. Z. and Shnol, S. E.
A POSSIBLE EXPLANATION OF ANOMALIES IN BIOLOGICAL ISOTOPE EFFECTS, OBSERVED BY D_2O^{16} AND H_2O^{18}, tr. by Sergey Shewchuck. [1961] 9p. 25 refs.
Order from OTS or SLA $1.10 UCRL Trans-695

Trans. of Akademiya Nauk SSSR. Doklady, 1961, v. 137 no. 3, p. 706-709.

DESCRIPTORS: *Congenital anomalies, *Microorganisms, *Radioactive isotopes, *Reproduction, Deuterium, Heavy water, Deuterium oxide, Water.

Bervald, E. A.
THE EFFECT OF THE FISHERY ON THE PRODUCTIVITY OF BREAM STOCKS OF THE ARAL SEA (Vozdeistvie Promysla na Produktivnost Stad Leshcha Aralskovo Morya) tr. by W. E. Ricker. 1961, 15p. 5 refs. FRBC Trans. Series no. 354.
Order from NRCC

Trans. of Voprosy Ikhtiologii (USSR) 1956, no. 7. p. 21-32.

DESCRIPTORS: *Fishes, *Fisheries, Marine biology, Production, Growth, Aging (Physiology), Aral Sea.

Ivanov, Lyudiya St.
A METHOD OF RELATIVE EVALUATION OF THE CONDITION OF A STOCK AND PREDICTION OF EXPECTED CATCH OF FISHES HAVING A SHORT LIFE CYCLE (Metod Otnositelnoi Otsenki Sostoyaniya Zapassa i Prognozirovaniya Ozhidaemovo Ulova Ryb s Korotkim Shisnennym Tsiklom) tr. by W. E. Ricker. 1961, 8p. 10 refs. FRBC Trans. Series no. 366.
Order from NRCC

Trans. of Voprosy Ikhtiologii (USSR) 1960, no. 14, p. 160-165.

DESCRIPTORS: *Fishes, *Fisheries, *Life span, *Reproduction, Mathematical prediction, Marine biology.

Ivlev, V. S.
AN ANALYSIS OF THE MECHANISM OF DISTRIBUTION OF FISH IN A TEMPERATURE GRADIENT (Analiz Mekhanizma Raspredeleniya Ryb v Usloviyakh Temperaturnovo Gradienta) tr. by W. E. Ricker. 1961, 8p. 9 refs. FRBC Trans. Series no. 364.
Order from NRCC

Trans. of Zoologicheskii Zhurnal (USSR) 1960, v. 39, no. 4, p. 494-499.
Another trans. is available from OTS or SLA $1.10 as 61-27576, MAFF B-8273, 1960 [8]p.

DESCRIPTORS: *Fishes, *Ecology, *Temperature, Distribution.

For abstract see Technical Translations 6: 811, 1961.

Lobashev, M. E., Lopatina, N. G. and others.
THE PHYSIOLOGICAL MECHANISM OF THE ORIENTATION OF THE HONEY BEE IN SPACE.
3 Dec 62 [28]p. 35 refs. JPRS: 16469.
Order from OTS or SLA $2.60 63-13368

Trans. of #Uspekhi Sovremennoi Biologii (USSR) 1962, v. 53, no. 2, p. 152-168.

DESCRIPTORS: *Insects, Hymenoptera, *Bees, Behavior, Conditioned reflex, *Sensory perception, Space perception, Physiology.

A series of experiments involving the association of food sources with differently colored panels lead to the conclusion that the basis of orientation is the formation in the bee of conditioned reflexes of varied degrees of complexity. Temporal coincidence of individual factors of the complex chain of natural stimuli leads to the formation of different systems of conditioned reflexes which then conditions the analysis of space by the bee. In the absence of a known reference point in the new surroundings the bee performs exploratory spiral flights until it reaches an area with familiar conditioned signals. The first of the conditioned stimuli encountered by the bee becomes the starting point for spatial exploration in the new locale. With the aid of further exploratory flights the bee locates other components of the previously developed stereotype. Recreation of the conditioned stereotype leads to a rapid discovery of the location of the hive or of the food source by the bee. Apparently the visual and olfactory conditioned reflexes serve as factors which enable animals to overcome territorial isolation and play a role in the exploration of the new locale. It is probable that the migrations of birds and fish are in general subject to the same physiologic mechanism which have been described for the bee.

Toomka, A. F.
RESULTS OF BIOMETRIC STUDY OF ENTAMOEBA GINGIVALIS (GROS, 1849) IN RELATION TO THEIR FEEDING INTENSITY AND CONDITIONS OF EXISTENCE IN THE HOST ORGANISM (Rezul'taty Biometricheskogo Izucheniya Entamoeba Gingivalis (Gros, 1849) v Svyazi s Intensivnost'yu Pitaniya i Usloviyami Obitaniya v Organizme Khozyaina). July 62 [10]p.
4 refs. RTS 2101.
Order from OTS or SLA $1.10 62-32484

Trans. of Zoologicheskii Zhurnal (USSR) 1960, v. 39, no. 4, p. 509-513.

DESCRIPTORS: *Amoeba, Parasites, *Mouth, Feeding.

CHEMISTRY

JOURNAL OF GENERAL CHEMISTRY, 1944, VOL. 14, NO. 7/8: [TABLE OF CONTENTS AND SELECTED ABSTRACTS]. [1962] [10p.] 35 refs.
Order from OTS or SLA $1.10 62-10851

Abstract trans. of Zhurnal Obshchei Khimii (USSR) 1944, v. 14, no. 7/8, p. 825-841, 848-864, 881-896.
##A complete trans. of p. 833-841 is available from LC or SLA mi$2.40, ph$3.30 as 59-17827 [1959] [15]p.; in Dutch from OTS or ETC $1.85 as 61-17143, MTWL-531, 15p.

DESCRIPTORS: *Abstracts, Chemistry, *Cellulose ethers, *Glucosides, *Sodium, *Sulfonates, *Sulfonamides, Heterocyclic compounds, *Coumarans, *Naphthalenes, Ethyl radicals, Esters, *Glutaric acids, *Vinyl radicals, Ethers.

Contents:
Action of metallic sodium on ethers of cellulose and glucosides, by N. N. Shorygina
##Sulfonation reactions. II. Effect of time and excess sulfonating agent on the course of the reaction, by A. A. Spryskov
Derivatives of sulfanilamide, III, by M. V. Rubtsov and V. M. Fedosova
Sulfanilamide derivatives of heterocyclic compounds, IV, by M. V. Rubtsov and V. M. Fedosova
Structure and synthesis of 2-methyl-4-hydroxycoumaran, by A. A. Shamshurin
Condensation of dihydrixynaphthalenes with diethyl ester of α-acetoglutaric acid, by A. A. Shamshurin
Polymerization of vinyl ethers; polymerization of vinyl isobutyl and vinyl isoamyl ethers, by I. P. Losev and others.

THE WORK OF THE INSTITUTE OF HIGH MOLECULAR COMPOUNDS. [1962] [1]p. [DSIR] NLL M. 4991.
Order from OTS or SLA $1.10 62-25910

Trans. of Akademiya Nauk SSSR. Vestnik, 1961 [v. 31] no. 5, p. 98-99.

DESCRIPTORS: *Scientific organizations, *Polymers.

Kerk, G. J. M. van der.
TEN YEARS OF ORGANOTIN RESEARCH (Tien Jaar Organotinonderzoek) tr. by H. A. G. Nathan. 1961, 32p. 37 refs. NRCC Technical Trans. 979.
Order from NRCC $2.00 NRCC C-4160

Trans. of Chemisch Weekblad (Netherlands) 1960, v. 56, no. 23, p. 339-349.

DESCRIPTORS: *Metalorganic compounds, *Tin compounds, Preparation, Chemical properties, *Pesticides.

Nagai, S., Kanazawa, T., and Kato, G.
PREPARATION OF FRITTED FERTILIZERS CONTAINING SOME TRACE ELEMENTS. [1962] [22]p. (foreign text included) 18 refs.
Order from SLA $2.60 62-10937

Trans. of Kogyo Kagaku Zasshi (Japan) 1957, v. 60, no. 8, p. 968-972.

DESCRIPTORS: *Slags, *Fertilizers, Solubility, Hydrochloric acid, Manganese, Zinc, Glass, *Fused materials, Preparation.

Semenov, N. N.
TOWARD NEW ACHIEVEMENTS IN SOVIET CHEMISTRY. 26 Nov 62 [11]p. JPRS: 16366.
Order from OTS or SLA $1.10 63-13345

Trans. from Pravda, Moscow (USSR) 1962, 25 June, p. 4-5.

DESCRIPTORS: Chemistry, *Scientific research, Scientific personnel.

An outline is given of the major areas of Soviet chemical research. The individual accomplishments of some of the currently active Soviet chemists are briefly reviewed.

Vagina, N. S.
ALL-UNION CONFERENCE ON THE CHEMISTRY, PREPARATION, AND ANALYSIS OF RARE EARTH ELEMENTS (NO. 2) [MOSCOW, 21-25 Nov 61]. 19 Nov 62 [10]p. JPRS: 16240.
Order from OTS or SLA $1.10 63-13351

Trans. of #Zhurnal Neorganicheskoi Khimii (USSR) 1962, v. 7, no. 8, p. 2025-2026.

DESCRIPTORS: *Rare earth elements, Chemistry, Preparation, Chemical analysis, Abstracts, Conferences.

Brief abstracts are given for some of the papers presented, and the resolutions of the conference are summarized.

Analytical Chemistry

DETERMINATION OF IRON IN BORAX; METHOD OF THE NEHER AND CO. A.-G. MELS. [1962] [3]p.
Order from SLA $1.10 62-14237

Trans. of unidentified German language article from Neher & Co., A.-G., Mels, n.d.

DESCRIPTORS: *Borax, *Iron, Determination, Colorimetric analysis, Thiocyanates.

DETERMINATION OF MANGANESE IN BORAX; METHOD OF THE NEHER AND CO. A.-G. MELS. [1962] [3]p.
Order from SLA $1.10 62-14236

Trans. of unidentified German language article from Neher & Co., A.-G., Mels, n.d.

DESCRIPTORS: *Borax, *Manganese, Determination, Colorimetric analysis, Permanganates.

Babaev, V. I. and Dan'shina, N. M.
RAPID METHOD FOR DETERMINING THE IODINE NUMBERS OF FATTY ALCOHOLS AND FATTY ACIDS (Uskorennyi Metod Opredeleniya Iodnykh Chisel Zhirnykh Spirtov i Zhirnykh Kislot). Aug 62 [4]p. RTS 2137
Order from OTS or SLA $1.10 62-32498

Trans. of Masloboino-Zhir[ovaya] Prom[yshlennost'] (USSR) 1961, v. 27, no. 10, p. 30-31.

DESCRIPTORS: *Fatty acids, *Alcohols, *Iodine compounds, Chlorides, Determination, Titration.

Bekturov, A. B. and Il'yasova, A. K.
ISOPOLYVANADATE IONS IN ACID SOLUTION (Ob Izopolivanadat-Ionakh v Kislykh Rastvorakh). July 62 [15]p. 19 refs. RTS 2123.
Order from OTS or SLA $1.60 62-32496

Trans. of Akad[emiya] Nauk Kazakh[skoi] SSR [Alma-Ata]. Izv[estiya]. Ser[iya] Khim[icheskaya] 1960 [v. 5] no. 2[18] p. 81-91.

DESCRIPTORS: *Vanadates, Ions, Detection (Chemical), Solutions, Acids, Sulfuric acid, Acetic acids, Electrolytic titration, Chemical indicators.

Vanadium is present in its orange solutions as anions of pentavanadic acid $H_7V_5O_{16}$. aq. The type of acid used has no effect on the type of isopolyvanadate ions formed by condensation reactions. A compound $C_{15}H_{26}N_2$. $H_7V_5O_{16}$. $3H_2O$ has been obtained. (Author)

Blazek, Antonin.
ELECTRIC THERMOBALANCE WITH SIMULTANEOUS REGISTRATION OF DIFFERENTIAL THERMAL ANALYSIS CURVES AND OF CURVES OF THE ANALYSIS OF GASEOUS DECOMPOSITION PRODUCTS. [1962] 21p. 22 refs.
Order from SLA $2.60 62-14781

Trans. of Hutnicke Listy (Czechoslovakia) 1957, v. 12, no. 12, p. 1096-1103.

DESCRIPTORS: *Laboratory equipment, Electrical equipment, *Balances, Recording devices, *Photoelectric pyrometers, *Thermochemistry, Gases, Decomposition.

Elovich, S. Yu. and Matorina, N. N.
STUDY OF COMPLEXING-AGENT CHROMATOGRAPHY BY MEANS OF LABELLED ATOMS. I. THEORETICAL BASES AND ISOTHERM OF Co^{2+} AND Fe^{2+} ION EXCHANGE, tr. by F. E. Wallwork. July 61 [14]p. 8 refs. AWRE/Trans/19; [DSIR] NLL M. 4289.
Order from OTS or SLA $1.60 62-25562

Trans. of Zhurnal Fizicheskoi Khimii (USSR) 1956, v. 30, no. 1, p. 69-75.

DESCRIPTORS: *Ion exchange, *Chromatographic analysis, Labeled substances, *Cobalt, *Iron, Citric acid, Oxalic acids, Thermodynamics.

An account is given of the general bases of equilibrium ion-exchange chromatography in stages, the examples selected being the ions of cobalt and iron. Measurements were made of the isotherms of the ion-exchange adsorption of Co^{2+} - H^+, Fe^{2+} - H^+ and Co^{2+} - NH_4^+ on SM-12 cation exchanger with the use of the radioactive isotopes Fe-59 and Co-60, and values have been found for the exchange constants of the systems Co^{2+} - H^+; Fe^{2+} - H^+; Co^{2+} - NH_4^+; NH_4^+ - H^+ For Fe^{2+} and Co^{2+} the values for exchange constants in respect of hydrogen are quite close, being respectively 1.41 and 1.46. This is in keeping with the slight difference in the diameters of the hydrated ions (4.81 and 4.80 Å). (Author)

Fuha, Keiichiro.
SPECTROSCOPIC ANALYSIS OF FLUORINE BY THE BaF BAND SPECTRUM. May 61 [6]p. (table omitted) 3 refs. Technical notes FRL-TN-71; AD-256 635.
Order from OTS or SLA $1.10 62-25219

Trans. of Nihon Kagaku Zasshi (Japan) 1955, v. 76, p. 14.

DESCRIPTORS: *Fluorine, Fluorides, *Barium compounds, Spectrographic analysis, Sulfates.

Use of the BaF and SrF bands instead of the commonly used CaF band (in spectrographic analyses by the direct current arc light method) was investigated. Interference of the barium line with observation of the CaF band led to this search for a substitute method. (Author)

Lipis, L. V.
SPECTRAL ANALYSIS BY THE EVAPORATION METHOD (REVIEW) tr. by D. H. Bolton. June 59 [20]p. 48 refs. AERE Trans 829.
Order from OTS or SLA $1.60 62-25399

Trans. of #Zavodskaya Laboratoriya (USSR) 1958, v. 24, no. 6, p. 736-745.

DESCRIPTORS: *Spectrographic analysis, Evaporation, *Chemical impurities, Condensation, Thin films, Standards, Sensitivity.

Miller, A. D.
DIRECT POTENTIOMETRIC TITRATION OF SULFATE ION WITH AN INDICATOR ELECTRODE
Mo | MoO_3 ‖ $BaSO_4$, PT. 1. Sep 57, 9p. 18 refs.
Order from OTS or SLA $1.10 62-14070

Trans. of #Zhur[nal] Anal[iticheskoi] Khim[ii] (USSR) 1956, v. 11, no. 5, p. 615-620.

DESCRIPTORS: *Sulfates, Ions, *Electrolytic titration, Electrodes, Molybdenum wire, Molybdates, Barium compounds, Electric potential.

A Mo| MoO_3 | $BaSO_4$ electrode, obtained by the alternate heating and immersion of a molybdenum wire in a barium chloride solution, followed by treatment with sulfuric acid, proved to be of practical value for determining the equivalent point in the titration of the sulfate ion with the barium ion. The method can be used in both neutral and acid media with either the classic or noncompensation (with a bimetallic pair of electrodes) titration scheme. An explanation is offered for the manner in which a Mo| MoO_3 | $BaSO_4$ electrode functions. (Author)

Preobrazhenskii, B. K., Kalyamin, A. V., and Lilova, O. M.
THE SEPARATION OF RADIOACTIVE RARE-EARTH ELEMENTS BY ION-EXCHANGE, tr. by E. G. Peters. 1958 [6]p. 4 refs. IGRL-T/R-81.
Order from OTS or SLA $1.10 62-25415

Trans. of [Zhurnal Neorganicheskoi Khimii] (USSR) 1957, v. 2 [no. 5] p. 1164-1166.

DESCRIPTORS: *Ion exchange resins, Radioactive isotopes, *Rare earth elements, Separation.

The possibility of using home-produced KU-2 cation resin for the rapid separation of radioactive rare-earth elements in small columns was proved. Equilibrium is attained on KU-2 X6 resin several times faster than on Dowex-50 X12, and this enables more rapid separations to be made, even at room temperature. The separation of elements Lu and Yb was carried out in as little as 5 minutes. Good separation of Y and Dy was also obtained. The form of the resin particles does not exert a significant effect on separation. (Author)

Senyavin, M. M. and Tikhonova, L. I.
CHROMATOGRAPHIC METHOD FOR THE COMPARATIVE EVALUATION OF THE STABILITY OF COMPLEX COMPOUNDS, REPT. I, tr. by A. S. Dyer. Dec 61 [12]p. 11 refs. AWRE/Trans/27; [DSIR] NLL M. 4781.
Order from OTS or SLA $1.60 62-25566

Trans. of Zhurnal Neorganicheskoi Khimii (USSR) 1956, v. 1, no. 12, p. 2772-2777.

DESCRIPTORS: *Chromatographic analysis, Ion exchange resins, *Complex compounds, Radioactive isotopes, *Strontium compounds, *Yttrium compounds, *Zirconium compounds, Stability.

A rapid chromatographic method is described for the comparative evaluation of the stability of complexes. The complexing ability of a series of organic compounds with Sr, Y and Zr is evaluated by the method proposed. The qualitative results obtained are in agreement with general ideas regarding the stability of various complexes. The suggested method may be used in various chemical operations where a rapid comparative evaluation of the stability of complexes is required. From the biological aspect the method developed can give some evidence about the efficiency of complexing agents under the conditions of a living organism by varying the nature of the cationite (cationite with phosphoric acid groups, apatite, bone). (Author)

Tolmachev, V. N. and Lomakina, G. G.
SPECTROPHOTOMETRIC STUDY OF THE REACTION BETWEEN SODIUM 1,8-DIOXY-2-(2'-OXYAZOBENZENE) 3,6-NAPHTHALENE DISULPHONATE AND MAGNESIUM IONS, tr. by F. E. Wallwork. Sep 61 [15]p. 8 refs. AWRE/Trans/21; [DSIR] NLL M. 4614.
Order from OTS or SLA $1.60 62-25564

Trans. of Zhurnal Fizicheskoi Khimii (USSR) 1957, v. 31, no. 7, p. 1600-1605.

DESCRIPTORS: Chemical equilibrium, Spectrographic analysis, *Dyes, Sodium compounds, Benzenes, Naphthalenes, *Sulfonates, *Magnesium, Ions, Complex compounds.

A study was made of equilibria in aqueous solutions containing magnesium ions and Acid Chrome Dark Blue dye. In the region pH $>$ 10 a complex MgR_2 is formed whose instability constant $K_1 = 3.1 \times 10^{-9}$. Clear evidence of the formation of the complex MgR is lacking. The optical properties of the complex MgR_2 were investigated and a suggestion is put forward for the possible structural formula of this compound. (Author)

Yoshiheli, Ishita.
RESEARCH ON SPECTROSCOPIC FLAME ANALYSIS: REPTS. [2, 4-6]. May 61 [36]p. 11 refs. Technical notes FRL-TN-73; AD 257 742.
Order from OTS or SLA $3.60 62-25218

Trans. of Nihon Kagaku Zasshi (Japan) 1955, v. 76, p. 56-[59] and v. 77, p. 238-244.

DESCRIPTORS: *Flames, Temperature, *Spectrographic analysis, Test methods, Gases, *Calcium compounds, Fluorides.

Contents:
Quantitative analysis of alkali elements
Method of measuring the temperature of a flame as a light source by using the reversion of sodium D spectrum
Band spectra of calcium fluoride
Sensitivity of various spectral lines.

Inorganic Chemistry

Ippolitova, E. A., Simanov, I. P. and others.
CHEMISTRY OF THE URANATES OF SOME GROUP II ELEMENTS, tr. by R. Hardbottle. 1961 [8]p. 11 refs. DEG Inf. Ser. 145(CA).
Order from OTS or SLA $1.10 62-25395

Trans. of Radiokhimiya (USSR) 1959 [v. 1] no. 6, p. 660-664.

DESCRIPTORS: *Alkaline earth compounds, *Cadmium compounds, *Zinc compounds, *Uranates, Chemical properties, Crystal structure, Thermochemistry, X-ray diffraction analysis.

We investigated by means of thermal and X-ray diffraction analysis the composition of the uranates of the elements of the second group of the periodic system, which on being heated in air form U_3O_8 and oxides or carbonates of the corresponding elements. The formation of alpha-$CdUO_4$ (570°C) and of beta-$CdUO_4$ (720°C) was established. The structure of these compounds was determined. As a result of the dissociation of $CdUO_4$ the following products occur in succession: phase $CdUO_{4-x}$ (925°C) with a defective structure of the $CaUO_4$ type, $(Cd, U)O_{2-xx}$ (1000°C) with a structure of the same type as fluorite, and U_3O_8 (1200°C). The formation of CdU_2O_7 succeeds the formation of the monouranate. As a result of cacining (800°C) mixtures of CdO and U_3O_8 with ratios Cd:U= 1:3, 1:4 and 1:5, a phase of variable composition $Cd_xU_{1-x}O_{3-y}$, where x varies between 0.25 and 0.17 and $y \approx 2x$, is obtained. This resembles in structure U_3O_8 and can be considered to be a lower and higher oxide of uranium in which some of the uranium atoms are replaced by cadmium. The solution starts to dissociate at above 900°C; the final product (1200°C) is U_3O_8. From the polyuranates of Ca, Sr and Ba the formation was revealed of CaU_2O_7, of BaU_2O_7, and also of the following phases of variable composition: $SrO.(1.5 - 1.75)UO_3$ and $BaO.(2+x)UO_3$, where x varies between 0.2 and 0.5. (Author)

Rudorf, Walter and Rudorf, Gerda.
TO UNDERSTANDING THE CARBON MONFLUORIDE. [1962] [23]p. 8 refs.
Order from SLA $2.60 62-16462

Trans. of Zeitschrift für Anorganische Chemie (East Germany) 1947, v. 253, p. 281-296.

DESCRIPTORS: *Carbon compounds, Fluorides, X-ray diffraction analysis, Molecular structure, Chemical bonds, *Graphite, Oxides.

Organic Chemistry

IMPROVEMENTS PERTAINING TO THE POLYMERIZATION OF OLEFINS. 12 Dec 55, 6p.
Order from OTS or SLA $1.10 62-16336

Trans. of Belgian patent 530,617 by Phillips Petroleum Company, USA, 23 July 54.

DESCRIPTORS: *Ethylenes, Polymerization.

Bashkirov, A. N., Kryukov, Yu. B. and others.
PROBLEM OF MECHANISM OF SYNTHESIS OF HYDROCARBONS FROM CARBON MONOXIDE AND HYDROGEN: CONCLUSIONS. [1962] 1p. [Warren Spring Lab. Trans.] NT363; [DSIR] NLL M. 4975.
Order from OTS or SLA $1.10 62-25899

Partial trans. (conclusions) of [Akademiya Nauk SSSR]. Inst[itut] Nefti. Trud[y] 1950, v. 1, no. 2, p. 306-327

DESCRIPTORS: Hydrogen, Carbon compounds, Monoxides, *Hydrocarbons, Synthesis.

Favorskii, A. E. and Onishchenko, A. S.
CONDENSATION OF ACETYLENE WITH KETO ALCOHOLS. I. SYNTHESIS OF 2,3-DIMETHYL-2,3-DIHYDROXY-4-PENTYNE. [1962] 3p. 8 refs.
Order from OTS or SLA $1.10 62-16831

[Abstract] trans. of Zhurnal Obshchei Khimii (USSR) 1941, v. 11, no. 13/14, p. 1111-1120.
A complete trans. is available from LC or SLA mi$2.40, ph$3.30 as 60-15846 [1960] [12]p.

DESCRIPTORS: *Ketols, *Acetylenes, Condensation reactions, Methyl radicals, Hydroxides.

Freisz, Lucien and Wagner, Walter.
PROCESS FOR OBTAINING GLUTAMIC ACID. [1962] 10p.
Order from OTS or SLA $1.10 62-16242

Trans. of French patent 1,100,943, gr. 19, cl. 4, C 07 c, by Établissements Fould-Springer, appl. 9 Mar 54, granted 13 Apr 55, pub. 26 Sep 55.

DESCRIPTORS: Industrial production, *Glutamic acid, Beets, Fermentation, Hydrolysis.

The process is characterized by the use of an acid hydrolysis product of vinasse, simply freed of materials in suspension, in order to lower to the iso-electric point of glutamic acid the pH of a purified juice, concentrated to a density of at least 1.26 and having a pH at least equal to 6 but lower than 7, this juice resulting from the hydrolysis of vinasse or a protein substance.

Körner, G. and Contardi, A.
1,2,3-v-TRINITROBENZENE: A NEW TRINITROTOLUENE AND CORRESPONDING DINITROHALIDE-SUBSTITUTED PRODUCTS. [1962] 12p. (footnotes omitted) 1 ref.
Order from SLA $1.60 62-16297

Trans. of article from an unidentified source, n. d.

DESCRIPTORS: *TNT, Nitro radicals, *Benzenes, Halides, Synthesis.

Matkovskii, K. I.
SYNTHÈSE DE LA LEUCINE-4-^{14}C (Sintez Leitsina-4-C^{14}) [Synthesis of Leucine-4-C^{14}] tr. by Mme. Straszewska. 10 Jan 62 [12]p. (Russian text included) 7 refs. CEA Trans. no. R 1473 (text in French).
Order from OTS or SLA $1.60 62-25097

Trans. in French of Ukrain[skii] Khim[icheskii] Zh[urnal] (USSR) 1960, v. 26, no. 5, p. 644-647.

DESCRIPTORS: Synthesis, *Leucine, Radioactive isotopes, Carbon, *Acetones.

Nous avons élaboré une méthode de préparation de la leucine -4-C^{14} par microsynthese de l'acide beta-méthyl-crotoique à partir de l'acétone -2-C^{14}. (Author)

Nesmeyanov, A. N. [Perevalova, E. G., and Golovnya, R. V.].
REACTIONS OF SUBSTITUTION OF HYDROGEN ATOMS IN FERROCENE [Reaktsii Zameshcheniya-Vodorodov Ferrotsena]. [1961] [6]p. 4 refs.
Order from OTS or SLA $1.10 62-14279

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1954, v. 97 [no. 3] p. 459-461.
Other translations are available from LC or SLA mi$1.80, ph$1.80 as 59-10645, [1958] [5]p. and from ATS as RJ-252.

DESCRIPTORS: *Metalorganic compounds, *Ferrocenes Chemical properties, Preparation, Substitution reactions, Hydrogen, Atoms.

Onishchenko, A. S.
CONDENSATION OF ACETYLENE WITH KETOLS, II. [1962] 2p. 8 refs.
Order from OTS or SLA $1.10 62-16827

[Abstract] trans. of Zhurnal Obshchei Khimii (USSR) 1943, v. 13, no. 7/8, p. 616-624.

DESCRIPTORS: *Ketols, *Acetylenes, Condensation reactions, Carbinols.

(See also 62-16831)

Petrov, K. A., Nifant'ev, E. E. and others.
PHOSPHOROUS-CONTAINING POLYMERS. III. APPLICATION OF THE ARBUZOV REACTION FOR POLYMERIZATION OF ETHYLENE ALKYL PHOSPHITES. 16 Aug 62 [8]p. 5 refs. FTD-TT-62-1058; AD-286 629.
Order from OTS $0.50 63-11521

Unedited rough draft trans. of Vysokomolekulyarnye Soedineniya (USSR) 1962, v. 4, no. 2, p. 246-249.

DESCRIPTORS: *Polymers, *Ethylenes, *Alkyl radicals, *Phosphites, Polymerization, Methanes, Iodides, Catalysts, Catalysis, Chlorides, Chemical reactions.

When ethylene alkyl phosphites are heated with catalytic amounts of methyl iodide, polyphosphonates are formed. The structure of the synthesized substances is proven by cleavage of the polyester chain by phosphorus pentachloride. (Author)

Piekarski, G.
LOWPRESSURE POLYMERISATES WITH BOUND SILICON. [1962] [1]p.
Order from SLA $1.10 62-14027

[Summary trans.] of German language article from an unidentified source, n.d.

DESCRIPTORS: *Polymerization, Pressure, *Silicon compounds, Catalysts, Catalysis, Infrared spectroscopy, Chemical bonds, Abstracts.

Rudenko, A. P., Balandin, A. A., and Chueva, G. Yu.
FACTORS, PROVOKING A CHANGE OF CARBON DEPOSITING MECHANISMS DURING HYDROCARBONS DECOMPOSITION. [1962] 4p. 8 refs.
Order from OTS or SLA $1.10 62-16115

Trans. of *Akad[emiya] Nauk SSSR. Otdel[enie] Khim[icheskikh] Nauk. Izvest[iya] 1961, no. 1, p. 164-166.

DESCRIPTORS: *Hydrocarbons, *Benzenes, *Pentanes, *Methanes, Decomposition, *Carbon deposits, Gels.

The number of possible carbonization mechanisms in decomposition of one or another organic substance is determined through the number of carbon-forming materials of various chemical classes, which can be produced under the decomposition conditions of the starting substance. (Author)

Syrkin, Ya. K.
ENERGY OF BONDS IN ORGANIC COMPOUNDS [Energii Svyazei Organicheskikh Soedinenii]. [1962] 3p.
Order from OTS or SLA $1.10 62-16834

Abstract trans. of Zhurnal Fizicheskoi Khimii (USSR) 1943, v. 17, no. 5/6, p. 347-380.
Another trans. is available from NRCC as NRCC TT-142.

DESCRIPTORS: Organic compounds, *Chemical bonds, Energy.

Vasserman, E. S. and Bedrintseva, A. B.
MECHANISM OF FORMATION OF VINYL ETHERS. [1962] 3p. 5 refs.
Order from OTS or SLA $1.10 62-16779

Trans. of Akademiya Nauk SSSR. Doklady, 1941, v. 33, no. 1, p. 34-36.

DESCRIPTORS: *Vinyl radicals, *Ethers, Synthesis, Reaction kinetics.

Physical Chemistry

TESTING OF POLYMERS BY THE METHOD OF THERMOMECHANICAL CURVES. 17 July 62, 4p. AID rept. 62-106; [NASA N62-14688].
Order from OTS or SLA $1.10 62-32433

Review of selected articles from 5 Russian periodicals.

DESCRIPTORS: *Polymers, Mechanical properties, Thermal expansion, Thermal stresses, Test methods.

Basevich, V. Ya., Devishev, M. I., and Kogarko, S. M.
EFFECT OF ACTIVE PARTICLES OF COMBUSTION PRODUCTS ON FLAME PROPAGATION RATE IN TURBULENT FLOW. [1962] 8p. 7 refs.
Order from OTS or SLA $1.10 62-10275

Trans. of Akad[emiya] Nauk SSSR. Otdel[enie Tekhnicheskikh] Nauk. Izvest[iya: Energetika i Avtomatika] 1960, no. 3, p. 138-144.
Another trans. is available in ARS Journal, v. 32, no. 1, $3.00.

DESCRIPTORS: Turbulent flow, *Flame propagation, Velocity, Hydrogen, Combustion, Particles, Chemical reactions, Flames, Gases, Propane, Fuels, Ignition, Propagation.

Increase of flame propagation rate in turbulent flow at introduction of the initial concentrations in active particles from flame reaction products into the starting mixture was experimentally observed. Flame lighting intensity is also increased at introduction of the active particles in connection with greater reaction rates in start of the zone. (Author)

Bogatskii, D. P.
DIAGRAMME D'ÉTAT DU SYSTÈME Ni-O_2 ET NATURE PHYSICOCHIMIQUE DES PHASES SOLIDES DANS CE SYSTÈME, tr. by Mme. Neskorojany-Dupin. 24 Mar 62 [17]p. 16 refs. CEA Trans. no. R 1586 (text in French).
Order from OTS or SLA $1.60 62-25076

Trans. in French of #Zh[urnal] Obshch[ei] Khim[ii] (USSR) 1951, v. 21 [no. 1] p. 3-10.

DESCRIPTORS: *Equations of state, *Nickel compounds, *Polymerization, *Thermodynamics, *Oxides, *Solid state physics.

On a étudié par différentes méthodes d'analyse physicochimique les propriétés et la nature des phases solides dans le système nickel-oxygène. On a étudié certains équilibres de processus de dissociation, de réduction et d'oxydation dans le système nickel-oxygène, et on a effectué les études thermodynamiques d'après les équilibres étudiés. D'après les résultats des études expérimentales et théoriques on a construit le diagramme d'état du système nickel-oxygène. (Author)

Csokan, P. and Hollo, M.
CONTRIBUTION TO THE KNOWLEDGE OF FORMATIONAL MECHANISM INVOLVED IN THE ANODICALLY PRODUCED HARD OXIDE COATINGS (Beitrag zur Frage des Bildungsmechanismus von Anodisch Erzeugten Hartoxydschichten). 14 Mar 62 [23]p. (foreign text included) 26 refs.
Order from SLA $2.60 62-16285

Trans. of Werkstoffe und Korrosion (West Germany) 1961, v. 12, no. 5, p. 288-295.

DESCRIPTORS: *Electrochemistry, *Aluminum electrodes, Anodes (Electrolytic cell), Oxides, Coatings, Microstructure, Sulfuric acid.

The hard-oxide coatings produced in dilute cold sulphuric acid solutions at different cell-voltages and exposure periods on aluminium were investigated under electron-microscope. Data obtained indicate that the time taken in the formation of hard oxide, from morphological aspects, can be suitably sub-divided into definite period-phases. The duration of successive periods is dependent upon cell voltages. At higher voltages the individual phase successions are faster whereas at lower voltages, they are slower, and, below certain range of voltages (30 to 34v) there is no hard oxide formation, but only an oxide skin which is reminiscent of the conventional Eloxal coating. (Author)

Deich, A. Ya.
FURTHER DISCUSSION ON THE STUDY OF LIQUID SYSTEMS FROM THE DEVIATION FROM ADDITIVITY OF THE LOGARITHMS OF VISCOSITY (REPLY TO THE REMARKS OF A. B. ZDANOVSKII) tr. by Bertha P. Klenova. 20 Sep 60, 4p. 12 refs. TVA-3874.
Order from OTS or SLA $1.10 62-24449

Trans. of #[Zhurnal Fizicheskoi Khimii] (USSR) 1960, v. 34, p. 1382-1383.

DESCRIPTORS: *Liquids, Mixtures, Viscosity, Salts, Logarithms.

See also 62-24448.

Dietzel, A.
FIELD STRENGTHS OF CATIONS AND THEIR RELATIONS TO DEVITREFICATION PHENOMENA, TO FORMATION OF COMPOUNDS, AND TO MELTING POINTS OF SILICATES (Die Kationenfeldstärken und ihre Beziehungen zu Entglasungsvorgängen, zur Verbindungsbildung und zu den Schmelzpunkten von Silicaten). [1962] [43]p. (foreign text included) 21 refs.
Order from SLA $4.60 62-18107

Trans. of Zeitschrift für Elektrochemie (Germany) 1942, v. 48, no. 1, p. 9-23.

DESCRIPTORS: *Silicates, Melting, *Glass, *Borates, Oxides, *Phosphates, Separation, Liquids, Phase studies, Chemical reactions, Crystal structure, Stability, Calorimetry, Electrolysis, *Silicon compounds, Crystallization.

Drakin, S. I.
A NEW METHOD OF SEGREGATING EUTECTIC ALLOYS [Paper] presented at All-Union Conference of Physico-Chemical Analysis (no. 2) 31 Jan 50. [1962] 9p 3 refs.
Order from OTS or SLA $1.10 62-18910

Trans. of Akad[emiya] Nauk SSSR. Sektor Fiz[iko]-Khim[icheskogo] Analiza. Izvestiya, 1950, v. 20, p. 341-344.
Another trans. is available from LC or SLA mi$1.80, ph$1.80 as 61-10290 [1960].

DESCRIPTORS: *Bismuth alloys, *Cadmium alloys, Separation, Tin alloys, *Eutectics.

For abstract see Technical Translations 5: 180, 1961.

Gruzdeva, N. A.
PREPARATION OF COLLOIDAL PALLADIUM FOR THE DETERMINATION OF HYDROGEN IN GASEOUS MIXTURES. Feb 62 [6]p. 2 refs. [DSIR] NLL M. 3636.
Order from OTS or SLA $1.10 62-25319

Trans. of Zavod[skaya] Lab[oratoriya] (USSR) 1949, v. 15 [no. 11] p. 1247-1248.

DESCRIPTORS: Mixtures, Gases, Reagents, Determination, *Palladium, *Colloids, Preparation, *Adsorbents, *Hydrogen.

Ioffe, I. I. and Yampol'skaya, E. S.
PREPARATION OF DICHLOROHYDRINS OF GLYCERIN BY HYPOCHLORINATION OF ALLYL CHLORIDE. [1962] 3p. 13 refs.
Order from OTS or SLA $1.10 62-14159

Trans. of Zhurnal Prikladnoi Khimii (USSR) 1945, v. 18, no. 1/2, p. 50-54.

DESCRIPTORS: *Allyl radicals, Chlorides, *Chlorination, *Glycerols, *Halohydrins, Synthesis.

Khaletskii, M. M. and Sukhorukov, B. I.
POLYMERIZATION OF METHYL METHACRYLATE IN A STRONG CONSTANT ELECTRIC FIELD. [1961] 7p. (5 figs. omitted) 14 refs.
Order from OTS or SLA $1.10 62-10979

Trans. of Russian language article from unidentified source [1959].

DESCRIPTORS: *Acrylic resins, Polymerization, Electric fields, *Electrets, Electrical properties, Infrared spectroscopy.

An electret was obtained during the polymerization of methyl methacrylate in which there was shown, with an accuracy of up to 1%, the absence of "frozen" orientation of polar groups. It was observed that in a vessel with electrodes at strong constant voltage, polymerization of methyl methacrylate proceeds more slowly than in a similar vessel without voltage. It was shown that by curves of the dependence of current upon time and temperature, it is possible to calculate the activation energy which agrees quantitatively with the activation energy of the polymerization. (Author)

Kiselev, V. F., Krasil'nikov, K. G., and Khodakov, G. S.
THE EFFECT OF THE AGGREGATION OF QUARTZ PARTICLES DURING GRINDING OF THE ADSORPTION PROPERTIES OF THE QUARTZ. [1962] [6]p. 21 refs. C.E. Trans. 2499; [DSIR] NLL M. 6009.
Order from OTS or SLA $1.10 62-25920

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1960 [v. 130] no. 6, p. 1273-1276.

DESCRIPTORS: *Quartz, Adsorption, Powders, Particles, Water vapor, Nitrogen, Volumetric analysis, Ball mills, Molecular structure, Crystallization, Lattices.

Kiselev, A. V.
EFFECT OF THE NATURE OF THE ADSORBENT, NONUNIFORMITY OF SURFACE, AND ADSORBATE-ADSORBATE INTERACTION IN THE ADSORBTIVE PROPERTIES OF SOLIDS. Presented at the Congress of the International Union of Pure and Applied Chemistry (IUPAC) (no. 18) Canada, 8 Aug 61. 29 Nov 62 [26]p. 55 refs. JPRS: 16405. NASA N63-10577
Order from OTS or SLA $2.60 63-13364

Trans. of Moscow U. Vestnik. Seriya 2: Khimiya (USSR) 1962 [v. 17] no. 1, p. 3-20.

DESCRIPTORS: *Adsorbents, Solids, *Carbon black, *Graphite, Gels, Surface properties, Geometry, Electrical properties, Magnetic properties, Thermodynamics, Hydrocarbons.

It is usually considered difficult to separate the influence of nonuniformity of the surface and of the adsorbate-adsorbate interaction. The drop in the heat of adsorption with increasing filling is ascribed both to nonuniformity of the surface, and to a repulsion among the adsorbed molecules. However, predominantly attractive forces usually act among the molecules of the adsorbent. Nonuniformity of the surface leads to a drop in the heat of adsorption, while adsorbate-adsorbate attraction causes an increase in it. A change from the predominant influence of nonuniformity of the surface to a predominant influence of adsorbate-adsorbate attraction is distinctly manifested, for example, in the graphitization of carbon black. These effects can be both intensified and weakened by chemical and geometric modifications of the adsorbent. The adsorption properties of nonuniform surfaces depend on the geometry and chemistry of the surface. In the case of uniform surfaces, these properties depend only on the nature of the adsorbate-adsorbate system. Experimental information is given of the differential heats of adsorption, parallel with the heat capacities of the adsorption systems and their infrared spectra. (Author)

Kondratenko, Z. V. and Fedorchenko, I. G.
DENSITY AND VISCOSITY FOR SOME POLYPHOSPHORIC ACIDS, tr. by Bertha P. Klenova. 19 Sep 60, 6p. 6 refs. TVA-3875.
Order from OTS or SLA $1.10 62-24450

Trans. #Zhur[nal] Neorg[anicheskoi] Khim[ii] (USSR) 1959, v. 4, p. 985-988.

DESCRIPTORS: *Phosphoric acids, Physical properties, Density, Viscosity, Temperature, Polymers.

The density of phosphoric acids containing 65.2 to 74.6% P_2O_5 was investigated at temperatures of 20° to 90° C. The density decreases negligibly with increase of temperature and increases with increased P_2O_5 concentration. The graph expressing the densities of phosphoric acids as a function of the P_2O_5 concentration may be used to determine the density of the acid from the P_2O_5 concentration or the P_2O_5 concentration of the acid from the known density at temperatures of 20° to 90° C. for acids containing 65.2 to 74.6% P_2O_5. The viscosity of phosphoric acids containing these amounts of P_2O_5 was studied at temperatures of 20° to 90° C. With increase of the P_2O_5 concentration the viscosity of the acids increases markedly. A comparison between the viscosities of acids containing 65.2 and 74.6% P_2O_5 showed an increase of about 19-fold of viscosity. However, with increase of temperature this rise decreases. The viscosity of the acids decreases with increase of temperature. For acids of high P_2O_5 concentrations the decrease in viscosity with increase of temperature is more marked than for acids containing less P_2O_5. Within the range of temperature increase from 20° to 50° C. the viscosity decreases to between 1/3 and 1/6 and with further increase of temperature to 1/2 or 1/3. (Author)

Krasil'shchikov, A. I., Antonova, L. G., and [Ivanovskii, F. P.].
ADSORPTION, IONISATION ET ACTIVATION CATALYTIQUE DES GAZ SUR LES MÉTAUX (Adsorbtsiya Ionizatsiya i Kataliticheskaya Aktivatsiya Gazov na Metallakh) [Adsorption Ionization and Catalytic Activation of Gases on Metals] tr. by Melnick. 20 Feb 62 [21]p. 31 refs. CEA Trans. no. R 1565.
Order from OTS or SLA $2.60 62-25091

Trans. in French of Kinetika i Kataliz (USSR) 1960, v. 1, no. 2, p. 212-220.

DESCRIPTORS: *Metals, *Gases, *Catalysts, *Ionization, *Adsorption, Electrochemistry.

On a étudié le potentiel électrochimique dans le processus d'adsorption de l'hydrogène, du gaz carbonique, de l'éthylène, du mélange éthylène-hydrogène, de l'oxyde de carbone, de l'azote, du mélange azote-hydrogène par le cuivre, le cobalt, le nickel, l'argent et le fer entre 250 et 425°. Dans tous les cas étudiés l'adsorption du gaz par le métal est accompagnée par une brusque variation du potentiel électrochimique. On suppose que ce fait est dû à l'ionisation d'une partie du gaz adsorbé à la surface du métal. (Author)

Kruglov, A. N. and Kochergin, V. P.
COMPOUNDS OF Sn(II) WITH NaF AND KF (O Kompleksnykh Soedineniyakh Ionov Dvukhvalentnogo Olova s Ftoridami Natriya i Kaliya). Mar 62 [7]p. 16 refs. RTS 2077.
Order from OTS or SLA $1.10 62-25108

Trans. of Nauchnye Doklady Vysshei Shkoly. Khimiya i Khimicheskaya Tekhnologiya (USSR) 1959, no. 1, p. 70-73.

DESCRIPTORS: *Complex compounds, *Tin compounds, *Sodium compounds, *Potassium compounds, Fluorides, Chlorides, Electrical properties, Density.

Potentiometric, conductivity, and density measurements have been made on solutions containing $SnCl_2$, KF, and NaF. The results show that these solutions contain compounds whose compositions are governed by the HCl concentration and by the nature of the alkali cation. (Author)

Ksenzhek, O. S.
THE OVERVOLTAGE DURING THE EVOLUTION OF CHLORINE. Oct 61 [3]p. 3 refs. [DSIR] NLL M. 3659.
Order from OTS or SLA $1.10 62-25298

Trans. of Zhur[nal] Fiz[icheskoi] Khim[ii] (USSR) 1956, v. 30, no. 12, p. 2812.

DESCRIPTORS: *Chlorine, Anodes, Electrodes, Electric fields, Wire, Polarization, Conductivity, Electrolytes, Electrochemistry.

Kuhn, Hans and Huber, Walter.
ELECTRON GAS MODEL OF ORGANIC DYES; FIELD EFFECT AS THE CAUSE OF ANOMALOUS INTENSITIES IN ABSORPTION BANDS (Elektronengasmodell Organischer Farbstoffe; Feldeffekt als Ursache von Intensitätsanomalien bei Absorptionsbanden) tr. by W. H. Everhardy. 17 June 59 [68]p. 32 refs. (foreign text included)
Order from OTS or SLA $6.60 59-18075

Trans. of Helv[etica] Chim[ica] Acta (Switzerland) 1959, v. 42, p. 363-386.

DESCRIPTORS: *Dyes, Theory, *Electrons, Oscellations, Gases, Models (Simulations), Spectrographic analysis, Absorption spectra, Intensity.

Levi, B. I. and Vasilenko, N. A.
PARTIAL PRESSURES OF NH_3 AND CO_2 ABOVE THE NH_4NO_3-NH_3-CO_2-H_2O SYSTEM, tr. by Bertha P. Klenova. 17 May 60, 15p. 10 refs. TVA-3863.
Order from OTS or SLA $1.60 62-24446

Trans. of #Zhur[nal] Priklad[noi] Khim[ii] (USSR) 1951, v. 24, p. 698-709.

DESCRIPTORS: *Ammonia, *Carbon dioxide, Vapor pressure, Solutions, Ammonium radicals, Nitrates, Water.

The curves of total pressure over the system NH_4NO_3-NH_3-CO_2-H_2O show a minium; ammonia predominates in the gas for values to the left of the minimum and CO_2 predominates for values to the right of it. With increase of CO_2 concentrations the partial NH_3 pressure in solution decreases; the relation is almost linear. The relationship between the partial CO_2 pressure and the CO_2 concentration in solution is of a progressive nature. The vapor pressure of water over the systems NH_3-H_2O and NH_4NO_3-NH_3-H_2O obeys Raoult's law. A relationship between the partial pressure of ammonia, the mole fraction of H_2O, and the mole fraction of NH_4OH in solution was found for the systems

NH_3-H_2O and NH_4NO_3-NH_3-H_2O. The relationships derived confirm that in these systems, within the limits investigated in this study, ammonia is present in solution as molecules of NH_4OH or $NH_3 \cdot H_2O$. (Author)

Luk'vanycheva, V. I. and Burshtein, R. Kh.
DETERMINATION OF THE IMPEDANCE OF AN IRON ELECTRODE IN ALKALINE SOLUTIONS (Izmerenie Impedansa Zhelezhogo Elektroda v Rastvorakh Shchelochi) tr. by J. Hardy. [1962] [20]p. (foreign text included) 14 refs. [CSIRO] Trans. no. 5648.
Order from OTS or SLA $1.60 62-25641

Trans. of #Zhurnal Fizicheskoi Khimii (USSR) 1961, v. 35, no. 6, p. 1343-1350.

DESCRIPTORS: *Electrochemistry, *Iron, *Electrodes, Alternating current, *Impedance, Determination, Solutions, Oxygen.

The dependence of the capacity and conductivity of an iron electrode upon the potential during anodic polarization in degassed alkaline solutions has been determined at various alternating current frequencies. It has been shown that at high frequencies the capacity of a pure iron electrode at the potential of the first anodic process corresponds to the capacity of the double layer The rise in capacity at potentials 0.1—0.2 is due to oxidation of bi-to trivalent iron. Adsorption of small amounts of oxygen increases the capacity of the iron electrode. Further increase in the quantity of sorbed oxygen leads to a fall in capacity. These changes are due to change in the exchange current of the process

$$Fe + OH^- \rightleftharpoons Fe(OH)_{ads} + e^-,$$

the rate of which changes in the same manner as the rate of the over-all anodic dissolution of iron in alkali. (Author)

Makishima, Shoji and Saito, Yasukazu.
CHEMISTRY OF CATALYSTS. May 62, 10p. 3 refs.
Order from SA $18.00 SA Code-37

Trans. of Kagaku Kogyo (Japan) 1960, v. 11, no. 10, p. 929-932.

DESCRIPTORS: *Catalysts, Chemistry, Classification, Metallic compounds, Oxidation-reduction reactions, Acids, Hydrocarbons, Reaction kinetics.

Matsuura, Ryo.
CHANGE IN SURFACE AREA OF GRANULAR VANADIUM PENTOXIDE BY HYDROGEN-REDUCTION, AND MICROSCOPIC OBSERVATION OF THE REDUCTION PROCESS. Rept. no. 4 of Studies on Vanadium Pentoxide Catalysts. [1962] 6p. 1 ref.
Order from SLA $1.10 62-10692

Trans. of Nihon Kagaku Zasshi (Japan) 1961, v. 82, no. 4, p. 419-421.

DESCRIPTORS: *Vanadium catalysts, Vanadium compounds, Oxides, Hydrogen, Reduction, Grains (Metallurgy), Surface area, Microstructure.

Using the granular vanadium pentoxide described in the Third report as the sample (See 62-10693), its surface area changes during hydrogen-reduction were traced by the BET method; and from the relationship between the rate of reduction and the rate of increase of the surface area, it was re-confirmed that the reduction mechanism suggested up to now (to the effect that the reduction reaction progresses at the interface of unreacted vanadium pentoxide and the vanadium trioxide formed, and that the reaction advances from the grain surface inwardly) was applicable. By a different method, samples still undergoing reduction were removed and their grain cross-sections were observed under the microscope: it was proved visually that the reaction took place according to the mechanism proposed up to now from the dynamics standpoint. (Author)

Matsuura, Ryo.
OXIDATION REACTION OF VANADIUM TRIOXIDE (BY OXYGEN). Rept. no. 2 of Studies on Vanadium Pentoxide Catalysts. [1962] 12p. 4 refs.
Order from SLA $1.60 62-10697

Trans. of Nihon Kagaku Zasshi (Japan) 1961, v. 82, no. 3, p. 281-285.

DESCRIPTORS: *Vanadium catalysts, Vanadium compounds, Oxides, Oxidation, Oxygen, Ions, Reaction kinetics, Thin films, Temperature, Pressure, Potassium compounds, Sulfates.

The oxidation velocity of vanadium trioxide formed by the hydrogen-reduction of vanadium pentoxide was measured at oxygen pressures of 60 ~ 250 mmHg and temperatures of 250° ~ 350°C and it was seen that the reaction consisted of a rapidly progressing reaction in the initial period and a slow reaction following this. The conclusions were reached that this rapid reaction was one which indicated the velocity of the reaction whereby vanadium trioxide and oxygen produced vanadium pentoxide, and that the subsequent slow reaction indicated the velocity of diffusion of oxygen ions through the film of vanadium pentoxide which formed at the surface of vanadium trioxide particles. (Author) (See also 62-10696)

Matsuura, Ryo.
REDUCTION REACTION OF SPHERICAL VANADIUM PENTOXIDE GRAINS IN HYDROGEN STREAM. Rept. no. 3 of Studies on Vanadium Pentoxide Catalysts. [1962] 8p. 1 ref.
Order from SLA $1.10 62-10693

Trans. of Nihon Kagaku Zasshi (Japan) 1961, v. 82, no. 4, p. 417-419.

DESCRIPTORS: *Vanadium catalysts, Vanadium compounds, Oxides, Grains (Metallurgy), Hydrogen, Reduction, Reaction kinetics, Thin films, Water, Diffusion.

Spherical vanadium pentoxide samples were prepared, and these were reduced by the normal-pressure flow-through method; the reduction velocity was determined from the amount of water formed. It was discovered as a result that the conclusions which had already been reached regarding the reduction mechanism, obtained from the powder reduction reaction by the static method, were applicable here as well (See 62-10696). It was also noted that the reduction velocity was influenced by the flow velocity, and it was made clear

from the results of investigation of the influence of water by the thermobalance that this was because the boundary-film diffusion of the water formed had had influence. (Author) (See also 62-10697)

Matsuura, Ryo.
REDUCTION REACTION OF VANADIUM PENTOXIDE BY HYDROGEN (REDUCTION OF VANADIUM PENTOXIDE BY A STATIC METHOD). Rept. no. 1 of Studies on Vanadium Pentoxide Catalysts. [1962] 13p. 13 refs.
Order from SLA $1.60 62-10696

Trans. of Nihon Kagaku Zasshi (Japan) 1961, v. 82, no. 3, p. 276-281.

DESCRIPTORS: *Vanadium catalysts, Vanadium compounds, Oxides, Reduction, Hydrogen, Reaction kinetics.

Using a static method, the velocity of the reduction reaction of vanadium pentoxide by hydrogen was measured across a hydrogen pressure range of 50 ~ 250 mmHg. It was found as a result that this is a reaction which advances at the boundary surface between unreacted vanadium pentoxide and the vanadium trioxide produced, and it was made clear that, (1) in the initial period of the reaction there occurs an autocatalytically progressing reaction of formation of reduction nuclei and growth, and (2) after formation of a film of vanadium trioxide, produced by reduction, the reaction advances steadily, but when reduction advances even more, (3) it changes to a reaction wherein diffusion is rate-determining. (Author)

Pen'ko, A. S.
ATOMIZATION OF LIQUIDS. 22 June 62, 9p. 3 refs.
FTD-TT-62-681; AD-286 183.
Order from OTS $0.50 63-11510

Unedited rough draft trans. of Inzhenerno-Fizicheskii Zhurnal (USSR) 1961, v. 4, no. 12, p. 47-51.

DESCRIPTORS: *Liquids, *Atomization, Drops, Centrifuges, Centrifugal fields, Steam, Air, Friction, Fluid mechanics.

This article examines the mechanism of the atomization of liquids in different types of atomizers. Recommendations are made for improving the degree of atomization.

Podymov, V. N. and Norden, P. A.
VARYING THE EXCITATION INTERVAL IN A CAPILLARY SINGING FLAME. 26 Mar 62 [10]p. 7 refs.
FTD-TT-61-391; SC-1063.
Order from OTS or SLA $1.10 62-24267

Unedited rough draft trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Fizika (USSR) 1961, no. 1, p. 134-137.

DESCRIPTORS: Capillaries, *Capillary tubes, Fuels, Combustion, *Flames, Flame propagation, Excitation, Acoustics, Fluid flow, Oscillation, Resonance, Experimental data.

Experimental data are given on the effect of resonator-tube parameters and fuel flow rate upon the magnitude of the excitation interval of a capillary singing flame. The opinion is expressed that the observable laws are a result of change in the convective flow in the tube, and must also depend upon factors determining diffusion burning. (Author)

Pozin, Yu. M.
THE CORROSION OF NICKEL IN SOLUTIONS UNDERGOING HYDROLYSIS. Dec 61 [9]p. (2 refs. figs. omitted) 15 refs. [DSIR] NLL M.3651.
Order from OTS or SLA $1.10 62-25306

Trans. of Zhur[nal] Prikl[adnoi] Khim[ii] (USSR) 1961, v. 34, no. 10, p. 2248-2253.

DESCRIPTORS: Hydrolysis, Solutions, *Nickel, *Corrosion.

A study was made of the behaviour of metallic nickel powder produced by the carbonyl method, as well as of porous plates sintered from such powder, in a concentrated cadmium chloride solution. (Author)

Roev, L. M. and Terenin, A. I.
INFRA-RED SPECTRA OF WATER, ETHANOL, AND METHANOL ADSORBED ON CHROMIC OXIDE. [1962] 9p. (4 figs. omitted) 20 refs.
Order from OTS or SLA $1.10 62-14356

Trans. of Akademiya Nauk SSSR. Doklady, 1959, v. 124, no. 2, p. [373-376].
Another trans. is available from CB $5.00

DESCRIPTORS: *Infrared spectroscopy, *Water, *Ethanols, *Methanols, Adsorption, Decomposition, *Chromium catalysts, Chromium compounds, Oxides.

Even at 20° the adsorption of alcohols on Cr_2O_3 is accompanied by the following processes: (a) splitting of H_2O molecules and OH-groups off the alcohol molecule with the formation of unsaturated compounds; (b) splitting off of hydrogen and the formation of surface compounds of the Cr-O-C-type in the case of methanol and of the Cr-O-C-C-type in the case of ethanol. Increasing the adsorption temperature to 150° produces no essential change in the disintegration of alcohol molecules. (Author)

Romodanova, L. D. and Roshchupkin, V. I.
ON THE COMBUSTION OF AMMONIUM PERCHLORATE. 19 Sep 62, 2p. AID rept. 62-139; NASA N62-16271; AD-285 338.
Order from OTS or SLA $1.10 62-33386

Abstract trans. of #Zhurnal Fizicheskoi Khimii (USSR) 1962, v. 36, no. 7, p. 1554-1555.

DESCRIPTORS: *Ammonium radicals, *Perchlorates, Chlorates, *Combustion, *Propellants, Pressure.

Rozen, A. M.
ADSORPTION FROM SOLUTION UNDER HIGH PRESSURE. [1962] [1]p. 4 refs.
Order from OTS or SLA $1.10 62-16765

Trans. of Akademiya Nauk SSSR. Doklady, 1943, v. 41, no. 7, p. 310-311.

DESCRIPTORS: *Acetic acids, Solutions, *Adsorption, High pressure research.

Rumyantsev, Yu. V., Zhitenava, G. M., and Kochkin, V. P.
VOLATILITY OF INDIUM SULFIDE (O Letuchesti Sul'fidiya Indiya) tr. by Sergey Shewchuck. Feb 62, 16p. (foreign text included) 5 refs.
Order from OTS or SLA $1.60 UCRL Trans-787

Trans. of Akademiya Nauk SSSR. Vostochno-Sibirskii Filial, Irkutsk. Trudy, 1960, no. 25, p. 110-116.

DESCRIPTORS: *Indium compounds, *Sulfides, Sublimation, Vaporization, Vapor pressure, Measurement, Thermodynamics.

Data are derived on the vapor tension of indium sulfide for the compound In_2S_3 in the temperature interval 675° to 925°. The coefficients are computed in the equations expressing the logarithmic function of the vapor pressure of indium sulfide with temperature. It is shown that the respect to volatility in vacuum (3 to $5 \cdot 10^{-2}$ mm Hg) the indium sulfide occupies an intermediate position between the sulfides of lead and zinc. (Author)

Samoilov, O. Ya.
ON THE THEORY OF HYDRATION OF IONS IN AQUEOUS SOLUTIONS (IN CONNECTION WITH THE EXPERIMENTAL RESULTS OBTAINED BY R. E. CONNICK AND R. E. POULSON). [1962] 5p. 6 refs.
Order from OTS or SLA $1.10 62-14551

Trans. of #Zhurnal Fizicheskoi Khimii (USSR) 1959, v. 33, no. 11, p. 2631-2632.

DESCRIPTORS: Ions, *Manganese, *Ion exchange, Solutions, Water Reaction kinetics.

Skorokhodov, I. I., Nekrasov, L. I. and others.
ON THE HIGHER PEROXIDE OF HYDROGEN AND FROZEN RADICALS. 24 Apr 62 [17]p. 18 refs. FTD-TT-62-634; AD-276 351.
Order from OTS or SLA $1.60 62-25855

Unedited rough draft trans. of #Zhurnal Fizicheskoi Khimii (USSR) 1962, v. 36, no. 2, p. 274-281.

DESCRIPTORS: *Peroxides, *Hydrogen compounds, *Free radicals, *Magnetic susceptibility, Decomposition, Temperature, Low temperature research, Paramagnetic resonance, Molecular structure, Molecular spectroscopy, Water vapor, Dissociation.

The magnetic properties of peroxide-radical condensates synthesized from dissociated water vapor and also obtained from the reaction of atomic hydrogen and liquid 100% ozone in the temperature range -150 to 20° were investigated. Before the start of decomposition (below -110°), the peroxide-radical condensates are weakly diamagnetic systems with a susceptibility of $-0.1 \cdot 10^{-6}$ to $-0.2 \cdot 10^{-6}$ CGSM. With increased temperature there is increased paramagnetism, associated with the appearance, in the ampule containing the sample, of oxygen released on the decomposition of the peroxide-radical condensate. The data obtained indicate that the molecular oxygen released on decomposition of the peroxide-radical condensates does not appear in the condensates in the adsorbed or occluded form, but forms as a result of the decomposition of the unstable compound H_2O_4, a higher peroxide of hydrogen. Estimates of the magnetic susceptibility of the compound H_2O_4 gave a value of $(-0.4$ to $0) \cdot 10^{-6}$ CGSM; this indicates that in this compound all valences are accounted for and it has linear structure as follows: H - O - O - O - O - H. (Author)

Strakhov, B. V., Lededev, V. P., and Kobozev, N. I.
THE TRANSFER OF AN EXPLOSION OF GASEOUS OZONE-OXYGEN SOLUTION. 23 May 62 [5]p. 2 refs. FTD-TT-62-337.
Order from OTS or SLA $1.10 62-25835

Unedited rough draft trans. of Moscow U. Vestnik. [Seriya 2: Khimiya] (USSR) 1961 [v. 16] no. 4, p. 31-32.

DESCRIPTORS: *Explosions, Gases, *Explosive gases, *Ozone, *Oxygen, Mixtures, *Liquified gases, Solutions, Pressure, Safety.

The explosibility of liquid ozone-oxygen solutions was studied in relation to the composition and pressure of the explosive gaseous ozone-oxygen mixture in contact with the liquid. The safety range was determined for pressures of the gas phase below 500 mm. The explosion of the gas is not imparted to the liquid at an ozone concentration in the latter below 25% by volume. A gas with a ozone concentration below 50% does not explode a liquid. (Author)

Tananaev, I.
TERNARY SYSTEM AlF_3-HF-H_2O [O Troinoi Sisteme: AlF_3-HF-H_2O] tr. by Bertha P. Klenova. 16 May 60, 6p. 9 refs. TVA-3861.
Order from OTS or SLA $1.10 62-24444

Trans. of [Zhurnal Obshchei Khimii] (USSR) 1938, v. 8 [no. 12] p. 1120-1124.
Another trans. is available from SLA as RT-1590.

DESCRIPTORS: *Aluminum compounds, Hydrogen compounds, Fluorides, *Hydrates, Solubility

Tsiklis, D. S., Kulikova, A. I., and Shenderei, L. I.
PHASE EQUILIBRIA IN THE SYSTEM ETHANOL-ETHYLENE-WATER AT HIGH PRESSURES AND TEMPERATURES. [1962] 10p.
Order from ATS $14.50 ATS-36P62R

Trans. of Khim[icheskaya] Prom[yshlennost'] (USSR) 1960, no. 5, [p. 401-406].

DESCRIPTORS: *Ethanols, *Ethylenes, Water, Phase studies, Thermodynamics, High pressure research, High temperature research.

Tsyurupa, N. N.
PRODUCTION OF PARTICLE-SIZE DISTRIBUTION CURVES OF A POWDER (Poluchenie Krivykh Raspredeleniya Poroshka po Razmeru Chastits). July 62 [18]p. 6 refs. RTS 2048.
Order from OTS or SLA $1.60 62-32471

Trans. of Khim[icheskaya] Prom[yshlennost'] (USSR) 1961, no. 3 [p. 185-190].

DESCRIPTORS: *Powders, *Particles, *Sedimentation, Differential equations, Integral equations, Curve fittings.

On the basis of a previously derived equation for sedimentation kinetics, an analytical method is proposed for solving the differential and integral equations of the curves representing the particle size distribution of powders. Equations are obtained for the distribution curves which show that powders are not a random association of particles having arbitrary sizes; their degree of dispersion obeys a definite law within a framework determined by a mathematical expression. The degree of dispersion of a powder may be characterised by two constants, determinable from the results of experimental observations. A table has been compiled, by means of which differential distribution curves can be constructed from the two constants found, thereby obviating complicated calculations. The same constants can be used for determining the three fundamental particle sizes of a powder: the limit size, most probable size and maximum size, as well as the degree of polydispersion of a powder (ratio of limit radii). A method is proposed for considerably shortening the time of experimental observations, an important point for the development of high-speed methods. Comparison of the analytical method with the graphical method currently employed reveals serious deficiencies of the latter, giving rise to inadmissible errors. (Author)

Vorob'ev, A. A. and Kalganov, A. F.
THE LINK BETWEEN THE DIELECTRIC STRENGTH OF GASES AND LIQUIDS AND THEIR PHYSIOCHEMICAL PROPERTIES. 23 Apr 62 [11]p. 13 refs. FTD-TT-62-170.
Order from OTS or SLA $1.60 62-25822

Unedited rough draft trans. of Politekhnicheskii Institut, Tomsk. Izvestiya (USSR) 1956, v. 91, p. 103-107.

DESCRIPTORS: *Dielectrics, Gases, Liquids, *Dielectric properties, Physical properties, Chemical properties, Ionization potential, Gas ionization, Molecular association, Electrochemistry.

An analysis of the experimental and theoretical data on the dielectric strength and physiochemical properties of gaseous and liquid dielectrics indicates the presence of a definite link between dielectric strength and the physiochemical properties of the dielectrics. The dielectric strength is greater in those gases and liquids which are characterized by high physiochemical parameters determining the intermolecular bonds; in general, the energy of molecular interaction. (Author)

Yagodkin, V. I.
GAS FLOW WITH COMBUSTION IN TUBES WITH POROUS WALLS. 11 Sep 62 [11]p. 2 refs. FTD-62-1071. AD-286 607.
Order from OTS or SLA $1.60 62-33632

Unedited rough draft trans. of Inzhenernyi Zhurnal (USSR) 1961, v. 1, no. 3, p. 165-169.

DESCRIPTORS: *Gas flow, *Combustion, *Flame propagation, Cylindrical bodies, Porosity, Hydrodynamics, Velocity, Air, Methanes, Mixtures.

An examination is made of the hydrodynamic problems of combustion in tubes. A theoretical analysis is given of flow with combustion under ideal conditions. Results are presented of experiments with combustion of a homogeneous air-methane mixture.

Yastrebova, L. S.
THE MAIN FACTORS DETERMINING THE SPEED OF CHEMICAL BREAKDOWN OF SILICA GLASS. [1962] [6]p. 4 refs. C.E. Trans. 2243; [DSIR] NLL M.4941.
Order from OTS or SLA $1.10 62-25885

Trans. of #Zh[urnal] Prikl[adnoi] Khim[ii] (USSR) 1961, v. 34 [no. 2] p. 448-451.

DESCRIPTORS: *Glass, Dioxides, Silicon compounds, Surfaces, Films, Porosity, *Optical glass, Stability, Reduction, Photoengraving, Acids, Solutions.

Yemel'yanova, G. I., Lebedev, V. P., and Kobozev, N. I.
CATALYTIC DECOMPOSITION OF LIQUID OZONE AT LOW TEMPERATURES. 22 Mar 62 [7]p. 2 refs. FTD-TT-62-214.
Order from OTS or SLA $1.10 62-24283

Unedited rough draft trans. of Moscow U. Vestnik. [Seriya 2]: Khimiya (USSR) 1961 [v. 16] no. 6, p. 31-34.

DESCRIPTORS: *Ozone, *Liquefied gases, Decomposition, Temperature, Platinum, Catalysts, Catalysis, Low temperature research.

The apparent activation energy of catalytic decomposition of ozone over platinum black in the - 183 to 195.6° range is 500 cal• $mole^{-1}$. Palladium black is also a catalyst in low-temperature decomposition of ozone. Silver black, copper, cupric oxide, nickelic and nickelous oxide, ferric oxide, and iron are catalytically inactive. The rate of the process does not depend on the solvent (oxygen and nitrogen) or the concentration of solutions. (Author)

Zdanovskii, A. B.
DISCUSSION ON THE ADDITIVITY OF THE LOGARITHMS OF VISCOSITY OF LIQUID MIXTURES (REMARKS TO THE PAPER OF A. YA. DEICH) tr. by Bertha P. Klenova. 19 Sep 60, 3p. 7 refs. TVA-3873.
Order from OTS or SLA $1.10 62-24448

Trans. of #[Zhurnal Fizicheskoi Khimii] (USSR) 1960, v. 34, p. 1380-1381.

DESCRIPTORS: *Liquids, Mixtures, Viscosity, Salts, *Sodium compounds, *Potassium compounds, Magnesium compounds, Chlorides, Logarithms.

See also 62-24449.

EARTH SCIENCES

Borisevich, E. S., Zhilevich, I. I. and others.
THE C 3 0-1 SEISMIC ELECTROGRAPHIC OSCILLOGRAPH. 15 May 62, 3p. AID Rept. 62-62.
Order from OTS or SLA $1.10 62-25139

Abstract trans. of Akademiya Nauk SSSR. Institut Fiziki Zemli. Trudy, 1961, no. 19(186) p. 44-51.

DESCRIPTORS: *Oscillographs, *Seismographs, Seismic waves, Recording devices, Memory devices.

The oscillograph is equipped with a memory device for storing seismic signals in reproducible form on multichannel magnetically coated plastic tape. It is intended to provide an automatic, legible recording of seismic processes, and can be used at both fixed and mobile seismic stations. (Author)

Climatology and Meteorology

METEOROLOGY AND HYDROLOGY, 1962, NO. 8: SELECTED ARTICLES. 26 Nov 62 [83]p. 114 refs.
JPRS: 16348.
Order from OTS or SLA $8.10 63-13317

Trans. of Meteorologiya i Gidrologiya (USSR) 1962, no. 8, p. 3-15, 31-32, 42-46, 54-62.

DESCRIPTORS: *Meteorology, *Hydrology, *Stratus clouds, Clouds, Boundary layer, Height finding, Thickness, Vertical indicators, *Air mass analysis, Stratification, Moisture, Upper atmosphere, Airborne, *Meteorological instruments, *Satellite vehicles, *Meteorological data, Collecting methods, *Oceanography, Literature, Conferences.

Contents:
Estimation of the height of the upper boundary and the vertical thickness of stratus clouds, by L. T. Matveev
On the stratification of frontal clouds, by A. M. Baranov
On the water content of clouds of the upper stratum, by E. P. Novosel'tsev
On a method of determining cloud boundaries with aircraft, by G. I. Kogan-Beletskii
Artificial satellites of the earth and weather, by V. P. Petrov and A. A. Sochivko: review by M. V. Belyakov of mono. pub. Leningrad, 1961
Literature on meteorology, hydrology and oceanography in 1961. II. Papers in journals and collections
Anniversary meetings.

METEOROLOGY AND HYDROLOGY, 1962, NO. 9: [SELECTED] ARTICLES. 7 Dec 62 [57]p. 116 refs.
JPRS: 16557. NASA N63-10661.
Order from OTS or SLA $5.60 63-13525

Trans. of Meteorologiya i Gidrologiya (USSR) 1962, no. 9, p. 4-6, 28-36, 58-64.

DESCRIPTORS: Literature, *Meteorology, *Hydrology, Oceanography, Climate, Arctic regions, Ice, Control, Clouds, Meteorological data, Analysis, Collecting methods, Satellite vehicles, Temperature, Periodic variations, Scientific research, Research program administration, Weather forecasting.

Contents:
Great prospects in the development of meteorology, oceanography, and hydrology of the land, by N. A. Belinskiin
Changes in climate through control of Arctic Basin ice, by L. B. Rakipova
Interpretation of television images of cloudiness obtained from artificial satellites, by D. M. Sonechkin
On estimating quantities of temperature anomaly, by L. V. Klimenko
Literature on meteorology, hydrology, and oceanography for 1961: articles in journals and collections
In the main administration of the hydro-meteorological service
In the scientific research sections of the hydrometeorological service
New instructions and directions.

TRANSACTIONS OF THE A. I. VOEKOVA MAIN GEOPHYSICAL OBSERVATORY, 1959 VOL. 101[163]. 13 Aug 62 [136]p. 44 refs. FTD-TT-62-500; AD-284 082.
Order from OTS or SLA $10.50 62-33065

Unedited rough draft trans. of Glavnaya Geofizicheskaya Observatoriya [Leningrad]. Trudy (USSR) 1959, v. 101[163] 75p.

DESCRIPTORS: *Geophysics, Fog, Clouds, Microstructure, Probability, Statistical processes, *Wind tunnels, Tests, *Anemometers, Test methods, *Meteorological instruments, Instrumentation.

Contents:
Experimental application of the method of mathematical statistics to microstructural fog and cloud research, by P. V. Dyachenko
Results of an analysis of a wind tunnel used in a main geophysical observatory, by P. V. D'yachenko and A. I. Kameneva
Testing of hand anemometers at the plant, by A. I. Kameneva
Errors of thermoelectric balancometer testing, by A. I. Pokrovskaya.

Bibilashvili, N. Sh.
CERTAIN PROBLEMS CONCERNING THE STRUCTURE OF CONVECTION CURRENTS IN CUMULUS AND CUMULUS CONGESTUS CLOUDS. [1962] 8p.
Order from ATS $12.00 ATS-34P64R

Trans. of El'brusskaya Vysokogornaya Ekspeditsiya (1934-60). [Trudy] (USSR) 1961, no. 2(5) p. 187-194.

DESCRIPTORS: *Air mass analysis, Clouds, *Cumulus clouds, *Convection.

Chudaikin, A. V.
METHODS OF INVESTIGATING THE MICROSTRUCTURE OF CUMULUS CONGESTUS AND THUNDERSTORM CLOUDS. [1962] 6p.
Order from ATS $9.35 ATS-36P64R

Trans. of El'brusskaya Vysokogornaya Ekspeditsiya (1934-60). [Trudy] (USSR) 1961, no. 2(5) p. 199-204.

DESCRIPTORS: *Air mass analysis clouds, *Cumulus clouds, *Thunderclouds, Storms, Microstructure.

Girs, A. A.
PRINCIPLES OF LONG-RANGE WEATHER FORECASTING: TABLE OF CONTENTS, tr. by David Kraus. Mar 61 [5]p. AmMetSoc M-RTC-28+
Order from OTS or SLA $1.10 62-33582

Partial trans. (table of contents) of mono. Osnovy Dolgosrochnykh Prognozov Pogody, Leningrad, 1960, 560p.

DESCRIPTORS: *Weather forecasting, *Meteorology, Atmosphere.

Imyanitov, I. M.
INSTRUMENTS AND METHODS FOR INVESTIGATING ATMOSPHERIC ELECTRICITY; INTRODUCTION AND TABLE OF CONTENTS, tr. by David Kraus. Apr 61 [7]p. AmMetSoc M-RTC-29+; AD-258 074.
Order from OTS or SLA $1.10 62-33579

Partial trans. (table of contents and introduction) of mono. Pribory i Metody dlya Izucheniya Elektrichestva Atmosfery, Moscow, 1957, 484p.

DESCRIPTORS: *Atmospheric electricity, *Electrical properties, Lightning, Thunderclouds, Measurement, Recording devices, Ionization, Electrometers.

Mashkovich, S. A. and Kheifets, Ya. M.
ON CERTAIN CHARACTERISTICS OF THE ZONAL CIRCULATION OF THE ATMOSPHERE OVER THE NORTHERN HEMISPHERE DURING THE INTERNATIONAL GEOPHYSICAL YEAR (O Nekotorykh Kharakteristikakh Zonal'noi Tsirkulyatsii Atmosfery Nad Severnym Polushariem za Period Mezhdunarodnogo Geofizicheskogo Goda) tr. by H. K. Gold. Aug 62, 15p. 15 refs. WB/T-90.
Order from OTS $0.50 63-11503

Trans. of Tsentral'nyi Institut Prognozov. Trudy (USSR) 1961, v. 111, p. 50-62.

DESCRIPTORS: *Atmosphere, Stratification, Motion, *Air mass analysis, *Weather forecasting, Tables.

The values of the zonal circulation index are presented for various atmospheric levels in the Northern Hemisphere during 1957-59.

Smirnov, V. B.
PRELIMINARY RESULTS OF THE TESTING OF AN AIRBORNE IONOSPHERIC STATION IN THE ARCTIC. 17 Jan 62 [12]p. (figs. omitted) 2 refs. JPRS: 11990.
Order from OTS or SLA $1.60 62-15478

Trans. of Issledovaniya Ionosfery i Meteorov: Sbornik Statei (USSR) 1960, no. (?) p. 106-113.

DESCRIPTORS: *Ionosphere, *Atmospheric sounding, *Meteorological radio, Radio equipment, Airborne, *Radiosondes, Design, Specifications, Operation, Tests, Arctic regions.

Data are presented concerning the equipment employed in an airborne panoramic ionospheric station designed for research in poorly accessible regions. The device permits the recording of altitude-frequency characteristic curves or the amplitude of a reflected fixed-frequency signal. The equipment may be augmented to measure the rate and drift of the ionized layer. The results of tests made in the vicinity of Dixon Island in September 1958 are summarized.

Vyal'tsev, V. V.
ARTIFICIAL SCATTERING OF CLOUDS. [1962] [5]p. [DSIR] NLL M.6302.
Order from OTS or SLA $1.10 62-25941

Trans. of Priroda (USSR) 1961 [v. 50] no. 11, p. 79-83. An abstract trans. is available from OTS or SLA $1.10 as 62-19115, AID-62-7, 19 Jan 62, 3p.

DESCRIPTORS: *Clouds, Reduction, Solar eclipse, *Visibility, Climatic factors, Aircraft, Flight paths, Carbon dioxide, Tests, Artificial precipitation.

For abstract see Technical Translations 8: 557, 1962.

Yamamoto, Takeo.
STUDIES ON THE FORECASTING OF SEASONAL WEATHER BY THE CIRCULATION TRENDS AT 200 mb HEIGHT. PT. I FORECASTING OF MONTHLY AMOUNT OF SUMMER PRECIPITATION IN JAPAN, tr by E. R. Hope. Sep 62, 18p. 7 refs. DSIS T 65 J.
Order from NRCC NRCC C-4163

Trans. of [Kisho Shushi] (Japan) 1961, ser. 2, v. 39, no. 1, p. 29-44.

DESCRIPTORS: *Weather forecasting, Periodic variations, Air mass analysis, *Precipitation, Japan, *Jet streams (Meteorology),

Geography

ABSTRACTS PERTAINING TO COMMUNIST CHINA IN SOVIET ABSTRACTS JOURNALS NO. 41 (GEOGRAPHY SERIES) [AND] (GEOLOGY SERIES). 23 Nov 62 [28]p. JPRS: 16315.
Order from OTS or SLA $2.60 63-13263

Trans. of selected abstracts from Referativnyi Zhurnal Geografiya (USSR) 1962, no. 1-2, 8; and from Referativnyi Zhurnal. Geologiya (USSR) 1962, no. 3.

DESCRIPTORS: Abstracts, *Geography, *Geology, *China.

BRIEF GAZETTEER OF HAN CH'UAN HSIEN.
20 Nov 62 [118]p. JPRS: 16268.
Order from OTS or SLA $9.60 63-13305

Trans. of mono. Han Ch'uan Hsien Chien Chih, Wu Han, Apr 59, 105p.

DESCRIPTORS: *Geography, *China, Maps, History, Mountains, Rivers, Climatology, Disasters, *Economics, Population, Industries, Agriculture, Forestry, Water supplies, Communication systems, Transportation, Commerce, Education, Culture, Medicine.

Contents:
Han-ch'uan Hsien map; Han-ch'uan Hsien and successive dynastic changes; Region; Mountain Ranges; Water ways; Climate; Soil; Natural calamities; Population; Industry; Agriculture; Forestry; Water conservancy; Marine products; Special local products; Communication and transportation; Commerce; Finance; Education; Culture; Medical treatment and health conditions; Living customs; Scenic resorts and relics.

Geology

ABSTRACTS PERTAINING TO COMMUNIST CHINA IN SOVIET ABSTRACTS JOURNALS NO. 40 (GEOLOGY SERIES). 16 Nov 62 [37]p. JPRS: 16219.
Order from OTS or SLA $3.60 63-13354

Trans. of selected abstracts from Referativnyi Zhurnal. Geologiya (USSR) 1961, nos. 9, 12 and 1962, no. 1.

DESCRIPTORS: Abstracts, *Geology, Paleoecology, Minerals, Well drilling, Geophysical prospecting, Hydrology, Glaciers, Climate, Mountains, Geochemistry, Irrigation systems, *China.

Contents:
General geology
Stratigraphy and paleontology
Geochemistry, mineralogy, petrology
Minerals, prospecting and surveying
Hydrogeology, engineering geology, permafrost studies
Geomorphology, paleogeography, anthropogenic period
Minerals, prospecting and surveying

INTERNATIONAL GEOLOGY REVIEW, VOL. 3, NO. 12, P. 1121-1249. AND INDEX TO VOL. 3.
Dec 61, lv. 182 refs.
Order from AGI $5.00, $55.00/year

Trans. of Sovetskaya Geologiya (USSR) 1960, no. 7, p. 3-27, 72-94, 103-115; no. 8, p. 66-86, 102-114.

DESCRIPTORS: Geology, Translations, Earth, *Geogeny, *Rocks, China, *Plants, *Paleoecology, Stratification, Siberia, *Geological time, Age, Sedimentation, *Terrain, Classification, *Minerals, Water, Czechoslovakia, Bibliography.

Contents:
Soviet Geology, 1960, no. 7, table of contents and translation availability
Development of the earth and its tectogenesis, by V. V. Beloussov
New data on the loess rocks of China, by Chang Tzung-hu
Staratigraphy from paleobotanical data of jurassic and lower cretaceous continental deposits in East Siberia and the Far East, by V. A. Vakhrameev
Absolute age-determination of sedimentary rocks by glauconites, by N. I. Polevaya and others
Classification of tectonic forms, by I. I. Potapov
Neotectics of East and Central Cis-Caucasus, by A. F. Yakushova
Mineral waters of Bohemia, by A. V. Zhevlakov
Reference section
Index to v. 3.

INTERNATIONAL GEOLOGY REVIEW, VOL. 4, NO. 5, P. 505-630. May 62, lv, 186 refs.
Order from AGI $5.00, $55.00/year

Trans. of [Akademiya Nauk SSSR. Sovet po Seismologii] (USSR) 1960, no. 8, p. 5-27; Sovetskaya Geologiya (USSR) 1961, no. 2, p. 39-67, 92-107, 177-178; [Chishitsugaku Zasshi] (Japan) 1959, v. 65, no. 762, p. 165-170; ##mono. Sovremennye Osadki Kaspiiskogo Morya (Contemporary Sediments of the Caspian Sea) Moscow, 1956, chaps. 6-7 and ref.
##A review trans. is available from AGI in v. 3, no. 7, $5.00.

DESCRIPTORS: Geology, *Earthquakes, Mapping, Seismic waves, *Oceanographical data, *Sedimentation, Caspian Sea, Translations, *Ores, *Lead, Minerals, *Mountains, Stratification, *Geochemistry, Morphology, Volcanoes, *Rocks, Japan, Bibliography.

Contents:
The problem of seismic regionalization, by S. V. Medvedev
##Sedimentation on the Caspian submarine slope within Azerbaijan, pt. 3, by M. V. Klenova
Soviet Geology, 1961, no. 2, table of contents and translation availability
Genesis of lead mineralization in the southern Altai, by P. F. Ivankin and Z. M. Nurbaev
New results on the geology of the Lovozero Massif, by A. V. Altamov and others
Morphology and structural history of the southeastern Crimea, by O. M. Filatov
Viktor Arsen'evich Nikolaev: an obituary
On the volcanic rocks in the Japanese paleozoic, rept. 2 Carboniferous, by Masao Minato and others
Review section
Reference section.

MATERIAL ON PALYNOLOGY AND STRATIGRAPHY. 8 Mar 62, 37p.
Order from OTS or SLA $3.60 62-24500

Trans. from mono. [Materialy po Palinologii i Stratigrafii. Sbornik Statei] Moscow, 1954.

DESCRIPTORS: *Pollen, Morphology, Distribution, Plants, *Paleoecology, Stratification.

Contents:
Main problems of palynological analysis for the near future, by I. M. Pokrovskaya
On pollen Brachyphyllum brongn, by V. V. Sauer and N. D. Mchedlishvili
Fossil species of genus Cedrus and their importance for stratigraphy of continental deposits, by V. V. Sauer.

Lemmlein, G. G. and Knyazev, V. S.
EXPERIMENT OF THE STUDY OF FRAGMENTAL QUARTZ (Opyt Izucheniya Oblomochnogo Kvartsa). [1962] [9]p. (figs. omitted).
Order from OTS or SLA $1.10 62-16628

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Geologicheskaya, 1951 [v. 16] no. 4, p. 99-101.

DESCRIPTORS: *Quartz, Minerals, Rock, *Geology, Sedimentation.

The article describes methods of the study of fragmental quartz and gives brief characteristics of its individual types. (Author)

Makarov, I. V.
ENERGY CONSUMPTION IN ROCK CRUSHING AND STRENGTH OF ROCKS. 18 Sep 62, 2p. AID rept. 62-136; AD-285 339.
Order from OTS or SLA $1.10 62-33387

Abstract trans. of Akademiya Nauk SSSR. Sibirskoe Otdelenie. Izvestiya, 1962, no. 4, p. 3-8.

DESCRIPTORS: Geology, *Rock, Fracture (Mechanics) Mechanical properties, *Ball mills, Energy, Consumption.

Petelin, V. P.
A SPEEDIER METHOD OF DETERMINING MEDIANS AND QUARTILES, tr. by E. R. Hope. Feb 62, 4p. DSIS T 365 R.
Order from NRCC

Trans. of Moskovskoe Obshchestvo Ispytatelei Prirody. Byulleten'. [Otdel Geologicheskii] (USSR) 1956, v. 31 [61] no. 1, p. 95-97.
Another trans. is available from OTS $4.50 in 61-11402/1-3, 1961, 444p.

DESCRIPTORS: *Sedimentation, Mechanical properties, Determination, *Statistical analysis, Nomographs.

Pustovalov, L. V.
ON FRAGMENTAL QUARTZ FROM THE PRODUCTIVE LAYER OF APSHERON PENINSULA. [1962] [45]p. 11 refs.
Order from OTS or SLA $4.60 62-16664

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Geologicheskaya, 1951 [v. 16] no. 4, p. 106-126.

DESCRIPTORS: *Quartz, Minerals, Rock, *Geology, Sedimentation.

The average total content of fragmental quartz in the rock of the productive layer of Apsheron Peninsula according to the analytical data of the petrographic laboratories of Azerbaidzhan (average of 878 determinations) is considerably lower than was formerly assumed, amounting to 48.6% in the predominant silty fraction. The content of fragmental feldspars averages 31.9%. The vertical distribution of the fragmental quartz of the productive layer of Apsheron Peninsula is uneven, but very regular. In the preponderantly sandy suites, consisting of the lower small periods of sediment accumulation, into which the whole layer may be subdivided, the fragmental quartz is considerably greater (average 60.8%), than in the preponderantly clayey suites (average 43.9%). Consequently, the arrival of the quartz had the character of a pulsating process; it was stronger in the beginning of the periods and weaker toward the end of the periods. At the comparison of the contents of quartz in one and the same stratigraphic horizon there is an uneven horizontal distribution over the area of Apsheron Peninsula; with an increasing content of quartz from the western to the eastern part of the Peninsula, from the Caucasus Mountains toward the Caspian Sea. In the same direction the content of feldspars decreases.

Ronov, A. B. and Khlebnikova, Z. V.
CHEMICAL COMPOSITION OF THE MAIN GENETIC CLAY TYPES (Khimicheskii Sostav Vazhneishikh Geneticheskikh Tipov Glin). [1962] [55]p. (foreign text included) 39 refs.
Order from OTS or SLA $5.60 62-16666

Trans. of Geokhimiya (USSR) 1957 [no. 6] p. 449-469.

DESCRIPTORS: *Geochemistry, *Clays, Chemical analysis, Sedimentation, Rock, Organic compounds, Geology, Meteorology.

According to the data of 10500 chemical analyses of separate clay samples and 305 analyses of average assays from 7932 samples, the average chemical compositions have been calculated. Simultaneously distribution frequency of percentages of rock forming oxides and the limits of their fluctuation percentages in clays of all genetic types and separately in marine clays, in continental clays of the cold climatic belt and in the continental clays of the humid and hot (tropical) belt, have been studied. In spite of a considerable fluctuation of clays composition these variations proved to be strictly regular and rigidly limited. As well as in magmatic rocks in clays exist a certain conjugation of variations in consequence of which one combination becomes a usual one and another impossible. Low alumina content is peculiar to marine clays and to continental clays of the cold climatic belt while high alumina content is typical only for continental clays of the humid and hot

belt. The formation of continental clays occurs in strict dependence on the climatic conditions. The clays of the cold belt approach by their composition the granodiorites They are products of initial weathering stages by which have been partly carried out the geochemically most mobile elements (Na, Ca and Mg). The continental clays of the humid and hot (tropical) belt are products of final stages of weathering under the action of which not only the mobile elements (Na, Ca, and Mg), but also the more inert ones (Fe, K and Si) have been carried out. In consequence the remnant products of weathering were enriched in most stable elements (Al, Ti).

Shabarova, N. T.
THE CHEMICAL COMPOSITION OF ANCIENT DEPOSITS. [1962] 5p. 7 refs.
Order from OTS or SLA $1.10 62-16667

Trans. of Akademiya Nauk SSSR. Doklady, 1955, v. 105, no. 5, p. 1031-1033.
Another trans. is available from CCT $8.00 as CCT-162TM, 4p.

DESCRIPTORS: *Geochemistry, Deposits, Paleoecology, *Organic compounds, Chemical analysis, Clays, Petroleum, Sand, Sedimentation, Well drilling.

An analysis was made of the organic part of deposits of ancient Caspai (Post-Pliocene epoch) which was selected off during drilling from two "crelius" wells in the region adjacent to the western shore of the Caspian Sea. The petroleum sand of the Chokrakian strata (middle Miocene) of Kabristan from a "crelius" well was also analyzed for comparison. In ancient deposits, the major component part is made up by the organic compounds of non-hydrolizable residue, which cover from 94.05 to 95.28% of the total. Carbohydrate-type compounds are not found. The bitumen content is comparatively small, from 1.93 to 4.91%. In contrast to modern marine deposits, the relative magnitude of nitrogenous substances of albumenous nature is lower than that of bitumens here; nitrogenous substances comprise from 0.66 to 1.31%.

Shamsiev, A. A.
ON THE DRILLING RESISTANCE OF ROCKS (O Burimosti Porod). [1962] [6]p. (foreign text included).
Order from OTS or SLA $1.10 62-16668

Trans. of Akademiya Nauk Azerbaidzhanskoi SSR [Baku]. Doklady, 1957, v. 13, no. 8, p. 843-845.

DESCRIPTORS: *Rock, Mechanical properties, *Well drilling, Drilling fluids, Clay, Density.

An analysis shows that the drilling resistance of rock depends to a considerable degree on the conditions of occurrence of the rock and the specific gravity of the clay suspension used. An increase in the specific gravity of the clay suspension leads to a considerable decrease in the mechanical rate of sinking of the well and a relatively greater degree of wear of the bit, owing to the fact that the bit must overcome a greater degree of drilling resistance in the rock than with clay suspension of lower specific gravity. A shortcoming of the method of classification of rocks according to their drilling resistance is also revealed, in that the drilling resistance of a given rock, among other factors, depends to a great degree on the lateral pressure of the rocks and the specific gravity of the clay suspension.

Mineralogy

Povarennykh, A. S.
HARDNESS OF MINERALS AS DEPENDENT ON THE STATE OF CHEMICAL BONDS (Zavisimost' Tverdosti Mineralov ot Sostoyaniya Khimicheskoi Svyazi). [1962] [7]p. (foreign text included) 9 refs.
Order from OTS or SLA $1.10 62-16663

Trans. of Akademiya Nauk SSSR. Doklady, 1957, v. 112, no. 6, p. 1098-1100.

DESCRIPTORS: *Minerals, Crystals, Hardness, *Chemical bonds.

Pairs of minerals or crystals, in which the inter-atomic distances, valence and the coordinated numbers of atoms are the same show that the crystals, which have an essentially covalent state of bond, are harder than those, where there prevails an ionic bond. At the same time the relative difference increases with the increase of the valence of the composing atoms and with the decrease of the inter-atomic distances.

Stronskaya, O. N.
INCLUSIONS IN QUARTZES OF NORTHWESTERN VOLHYNYA. [1962] [9]p. 5 refs.
Order from OTS or SLA $1.10 62-16676

Trans. of Mineralogicheskii Sbornik (USSR) 1955, v. 9, p. 321-323.

DESCRIPTORS: *Quartz, *Minerals, Liquids, Solids, Gases, Crystallization, Temperature, Quartz crystals, Pegmatites.

In the quartzes of granites, migmatites, and pegmatites solid inclusions are of frequent occurrence, which indicates the great number of accessory minerals in the melt from which the quartz crystallized. Identification of these minerals may partially characterize the chemical composition of the medium. The quartz crystallized throughout a broad temperature range, beginning with high-temperature melts, as the congealed inclusions show. It is suggested that the pegmatites of northwestern Volhynia crystallized from the residual granitic melt. Processes of metasomatosis, observed in the form of albitization of feldspars, manifest a still-later stage of pegmatite formation. Cracks were filled by cold, aqueous solutions. Pegmatites show signs of a pneumatolytic process; this is confirmed by gaseous inclusions. The presence of quartz with a cellular structure suggests that the prevailing pressure changed during the formation of pegmatites. (Author)

Oceanography

Bruevich, S. V.
STANDARDIZATION OF METHODS OF CHEMICAL RESEARCH AND METHODS OF EXPRESSING SEA-WATER ANALYSES, tr. by E. R. Hope. Mar 62 [6]p. 3 refs. DSIS T 367 R.
Order from NRCC NRCC C-3942

Trans. of [Akademiya Nauk SSSR]. Institut Okeanologii. Trudy, 1958, v. 26, p. 243-246.

DESCRIPTORS: *Sea water, Chemical analysis, Standardization, Titration, Colorimetry.

Kudryavtsev, N. F.
CONCERNING A METHOD OF CALCULATING EXTREMUM HIGH-WATER LEVELS (Ob Odnom Metode Vychisleniya Ekstremal'nykh Vysot Prilivov). July 60 [8]p. 3 refs. RTS 2102.
Order from OTS or SLA $1.10 62-32485

Trans. of Okeanologiya (USSR) 1961, v. 1, no. 4, p. 741-743.

DESCRIPTORS: *Tides, Ocean waves, Water, Mathematical analysis.

Shuleikin, V. V.
ANALYSIS OF MEASUREMENTS OF LARGEST WIND-CAUSED WAVES IN THE OCEAN (Analiz Izmerenii Predel'no Bol'shikh Vetrovykh Voln v Okeane). [1962] [11]p. (foreign text included) 6 refs.
Order from OTS or SLA $1.60 62-16671

Trans. of Akademiya Nauk SSSR. Doklady, 1956, v. 110, no. 1, p. 53-56.

DESCRIPTORS: Water waves, *Ocean waves, Wave analysis, *Wind, Turbulence, Meteorology, Oceanography, Marine meteorology, Measurement.

To determine the quantitative characteristics of wave-formation an analysis is made of the elements of the largest waves in the ocean on the basis of previous theoretical considerations (Akad. Nauk SSSR Doklady 104: 397, 1955). (See also 61-27499)

Physics of the Atmosphere

Eryusher, N. N., Neshpor, Yu. I. and others.
THE REGISTRATION OF THE INTENSITY OF ATMOSPHERICS ON 27 KC WITH A DIRECTIONAL ANTENNA SYSTEM [AND] THE POSSIBLE STRUCTURE OF THE D-REGION SUDDEN IONOSPHERIC DISTURBANCES. 1962 [25]p. 9 refs. FTD-TT-62-587; AD-284 137.
Order from OTS or SLA $2.60 62-33399

Unedited rough draft trans. of [Akademiya Nauk SSSR]. Krymskaya Astrofizicheskaya Observatoriya. Izvestiya, 1960, v. 24, p. 32-47.

DESCRIPTORS: *Atmospherics, Intensity, *Directional finding, *Antennas, Ionosphere, *Ionospheric disturbances, Solar flares, Ionization, X-rays, *Ionospheric propagation, Radio waves, Absorption.

The apparatus used for the registration of atmospherics on 27 kc by means of a directional antenna system is described. The intensity of atmospherics depends essentially on the direction of reception. In the majority of cases the position of the main seat of the source remains practically unchanged during the time of development of solar flare effects. The appearance of regular "forerunners" preceding solar flare effects was detected. The possible connection between these phenomena and processes on the Sun, which precede the commencement of development of flares in H_α, is pointed out. (Eryusher and Smirnor). A method for determining the structure of the D-region during sudden ionospheric disturbances is proposed. On the basis of experimental results obtained for the disturbances of August 31, 1956 and August 22, 1958 it is concluded that the ionizing radiation of these flares is not identical with the radiation which produces the quiet D-region, and is apparently X-ray radiation. (Neshpor and Savich).

Petrov, V. N. and Pressman, A. Ya.
EVALUATION OF THE INFLUENCE OF TURBULENT SCATTERING ALONG THE VERTICAL AND IN THE DIRECTION OF THE WIND ON THE PROPAGATION OF A POLYDISPERSED ADMIXTURE. 3 Dec 62 [10]p. 6 refs. JPRS: 16492.
Order from OTS or SLA $1.10 63-13371

Trans. of Akademiya Nauk SSSR. Doklady, 1962, v. 146, no. 1, p. 86-88.

DESCRIPTORS: *Atmosphere models, *Turbulent flow, *Wind, Particles, Mixtures, Scattering, Velocity.

The case is considered when horizontal dispersion is proportional to time and the turbulent scattering of a polydispersed admixture along the vertical is small as compared with the vertical scattering, which is caused by the difference in the velocities of fall of particles in different mass fractions of the admixture. The dependence of the coefficients of turbulent scattering of different mass fractions on the rate of fall of particles is included. (Author)

Zavarina, M. V.
CONCERNING THE DIURNAL PATTERN OF PROBABILITY ZONES OF INCREASED TURBULENCE AT HIGH ALTITUDES. 3 Dec 62 [12]p. 4 refs. JPRS; 16458. NASA N62-10565
Order from OTS or SLA $1.60 63-13313

Trans. of Glavnaya Geofizicheskaya Observatoriya, Leningrad. Trudy (USSR) 1962, no. 131 [193] p. 45-51.

DESCRIPTORS: *Upper atmosphere, Atmosphere, *Turbulence, *Atmospheric sounding, Probability, Diurnal variations, Climatic factors, Aircraft, Geophysics.

This paper examines the diurnal pattern of probability zones of increased turbulence with which the formation of appreciable oscillations of an airplane is connected. The presence of these zones is established by a refined criteria of Richardson. For identification of the diurnal change of probabilities, data are used from temperature-wind soundings made by three aerological stations during four months from 1952-1957. During warm parts of the year, a diurnal pattern appeared significantly in the lower kilometer layers of the atmosphere. (Author)

MERITORIOUS AND HONORARY MEMBERS OF THE ASSOCIATION OF ENGINEERS AND TECHNICIANS OF YUGOSLAVIA. 29 Nov 62 [8]p. (photos. omitted). JPRS: 16415.
Order from OTS or SLA $1.10 63-13361

Trans. of Tehnika (Yugoslavia) 1962, v. 17, no. 10, p. 1846-1847.

DESCRIPTORS: Personnel, *Engineering personnel, History.

Biographic data is presented on the following individuals: B. Culafic; O. Roboz; N. Oka; F. Alikalfic; B. Ravnjanski.

PROTECTIVE STRUCTURES AND COMPONENTS: SOVIET LITERATURE. Quarterly rept. no. 4 on Ground Support Equipment, AID Work Assignment no. 13. 1 May 62 [24]p. 21 refs. AID rept. 62-58.
Order from OTS or SLA $2.60 62-25151

DESCRIPTORS: Protective coverings, Shelters, *Railroads, *Ground support equipment, Construction, *Cargo ships, Water traffic, *Elevators, *Spaceships, *Launching.

Contents:
Railroad systems
Water transport
Launching devices.
See also 62-15420.

Ivlichev, Yu. I. and Ismiev, E. A.
SENSING ELEMENT OF MASS FUEL OR GAS CONSUMPTION. 26 July 62 [5]p. FTD-TT-62-779; AD-283 890.
Order from OTS or SLA $1.10 62-32978

Unedited rough draft trans. of [Russian] patent 139 098, appl. no. 680315/26, 27 Sep 60, p. 1-2.

DESCRIPTORS: *Fuels, Gases, Consumption, Indicators.

For the purpose of increasing the measurement accuracy and to simplify the construction, it is made in form of two chambers, divided by membrane, one of which through turbulent choke is joined with hollow of pipe line up to the choke washer, and the second one with hollow of pipe line pass the choke washer, and thermostat for maintaining constant temperature of the flow, flowing through follow up nozzle into circulating chamber with linear choke. (Author)

Litinetskiĭ, I.
RELIABILITY AND LONG SERVICE LIFE. USSR Industrial Development: Soviet Precision Equipment no. 45. 5 Dec 62 [17]p. JPRS: 16520.
Order from OTS or SLA $1.60 63-13276

Trans. of Molodoi Kommunist (USSR) 1962 [v. 20] no. 10, p. 8-17.

DESCRIPTORS: *Industrial production, *Precision equipment, *Reliability, Quality control, Electronic equipment, Electrical equipment, Agricultural machinery, Vehicles, Machine tools, Excavators, Wrist watches.

A general discussion of the lack of reliability of a number of Soviet made goods is coupled with a plea for more stringent quality control.

Martinson, E. N., Myznikov, K. N. and others.
SORPTION-CONDENSATION-IONIC ULTRAHIGH-VACUUM PUMP (Sorbtionno-Kondensationno-Ionnyi Sverkhvysokovakuumnyi Nasos). 25 May 62 [5]p. FTD-TT-62-526.
Order from OTS or SLA $1.10 62-25750

Unedited rough draft trans. of description of invention for author's certificate 140123, declared on 15 Oct 60 under no. 682237/26 ([#Byulleten' Izobretenii] (USSR) 1961, no. 15).

DESCRIPTORS: *Vacuum pumps, Ions, Sorption, Condensation, Liquefied gases, Nitrogen.

The sorption-condensation-ionic ultrahigh-vacuum pump with titanium, zirconium or thorium getter, differs by the fact that in order to increase the rate of evacuation, and its maximum vacuum, and also to prevent the formation of methane and other hydrocarbons, the entire evaporated getter is deposited on the surface cooled with liquid nitrogen. (Author)

Niemann, Gustav.
PLATFORM WEIGHER, tr. by P. C. C. 7 Aug 62, 9p. (figs. omitted).
Order from OTS or SLA $1.10 62-32914

Trans. of German patent 622,581, cl. 42f, gr. 10, by Demag A. G., pat. from 7 July 32, pub. 2 Dec 35.

DESCRIPTORS: *Balances, Tensiometers, Vibration, Electrical equipment.

Ratmanov, Yu. N. and Kul'gachev, A. G.
A BALANCED TWO-SLIT MAGNETIC HEAD. 22 Aug 62 [4]p. FTD-TT-62-858; AD-284 080.
Order from OTS or SLA $1.10 62-32942

Unedited rough draft trans. of Russian patent 141 652 (687 651) 2 Dec 60.

DESCRIPTORS: *Magnetic recording systems, Magnet coils, Signals.

A balanced two-slit magnetic head is proposed for recording and reproducing a signal. In order to suppress the signal being recorded in the reproduction winding, the magnetic circuit of the head consists of three bars with the two halves of the recording winding located on the outer bars and the reproduction winding on the middle bar.

Sokolov, V. A. and Ivanov, Yu. F.
AN ASTRO-SHIP CALLS THE EARTH: SUPER-LONG-DISTANCE COMMUNICATIONS WITH A SPACE SHIP. 27 Aug 62 [18]p. FTD-TT-62-721. AD-286 611.
Order from OTS or SLA $1.60 62-33533

Unedited rough draft trans. of Nauka i Zhizn' (USSR) 1962 [v. 29] no. 2, p. 13-19.

DESCRIPTORS: *Space communication systems, Spaceships, *Radio communication systems, Parabolic antennas, *Light communication systems, *Lasers.

Aeronautical Engineering

NEW METHODS FOR INCREASING THE DEPENDABILITY OF AIRCRAFT. 18 Apr 62 [4]p. FTD-TT-62-453.
Order from OTS or SLA $1.10 62-25745

Unedited rough draft trans. of an unidentified TASS rept., 19 Jan 62, 1p.

DESCRIPTORS: *Aircraft, Reliability, *Vibration, *Jet engines, *Sound, Control surfaces, *Fatique

Foteev, A. M., Glushkov, I. L. and others.
A CONTROLLED GLIDING PARACHUTE. 4 June 62 [6]p. FTD-TT-62-349; AD 276 873.
Order from OTS or SLA $1.10 62-32282

Unedited rough draft trans. of Soviet patent [1]35344 (642533/27) 29 Jan 60.

DESCRIPTORS: *Parachutes, Design, Maneuver-ability, Parachute descents, Control systems.

The design of a controlled gliding parachute is describe The distinctive feature of the proposed device is that, tc improve the maneuverability by making the symmetrically arranged shroud lines movable, the latter are mac in 1 piece and passed through the buckles of the fixed straps attached to the joints the movable straps have grooves for determining the neutral position. (Author)

Pipko, D.
RECORDS OF A WINGED LAD. 10 Aug 62 [4]p.
FTD-TT-62-1079; AD-285 829.
Order from OTS or SLA $1.10 62-33079

Unedited rough draft trans. from Izvestiya (USSR) 1962 no. 56, 7 Mar, p. 6.

DESCRIPTORS: *Jet planes, Flight testing, Design, Airplanes, Jet engines, *Pilots, Tests.

Shibanov, A.
BALLISTIC AIRCRAFT OF THE FUTURE. 29 Aug 62 [7]p. FTD-TT-62-1005. AD-286 564.
Order from OTS or SLA $1.10 62-33538

Unedited rough draft trans. of Znanie Sila (USSR) 1958 [v. 33] no. 12, p. 19.

DESCRIPTORS: *Rocket planes, Ballistics, Rockets, Gliders, *Hypervelocity vehicles, Aircraft, Wings, Lift, Airplane landing, Aerodynamics, Design.

Chemical Engineering

GREEN LIGHT TO ORDERS OF CHEMISTRY. USSR Industrial Development: Soviet Chemical Machine Building no. 11. 15 Nov 62 [6]p.
JPRS: 16193
Order from OTS or SLA $1.10 63-13097

Trans. from Radyans'ka Ukrayina (USSR) 1962, 16 Oct, p. 3.

DESCRIPTORS: *Industrial production, *Chemical industry, Chemical engineering, Machines, Economics, Industrial plants.

HIGH LINEAR POLYMERS OF PREFERRED ALPHA-OLEFIN STRUCTURE AND PROCESS FOR THE PREPARATION THEREOF, tr. by P. C. C. 15 May 62, 22p.
Order from OTS or SLA $2.60 62-25019

Trans. of Italian patent 526,101, cl. XXIV, by Montecatini Soc. Gen. per l'Industria Mineraria e Chimica, appl. 3 Dec 54, granted 14 May 55, printed Feb 58.

DESCRIPTORS: *Polymers, *Ethylenes, Preparation, Molecular structure, Catalysts, Aluminum compounds, Titanium compounds.

A process is claimed for the selective polymerization of alpha-olefins ($R-CH=CH_2$) containing at least 3 carbon atoms by means of a catalyst consisting of a solid titanium compound and containing at least surface-type linkages between alkyl groups and polyvalent metals, characterized in that the polymerization is more selective in the production of high regular structure linear polymers, the asymmetric-structure carbon atoms being oriented in the same manner (isotactic) and generally displaying a greater tendency to crystallization, by utilizing the catalyst in a solid, little dispersed form, and by the use in the production of high amorphous polymers (substantially not containing side chains longer than the R-group chain linked to the monomer), of a highly dispersed catalyst preferably suspended in an olefin solvent. (Author)

METHOD FOR IMPROVING BLOCK POLYMERS. [1962] [1]p.
Order from OTS or SLA $1.10 62-16340

Trans. of Belgian patent 538,241 by Gevaert Photo-Production N. V., submitted at Mortsel, 18 May 55 (Priority: England, 21 May 54, 14966).

DESCRIPTORS: *Polymers, Polymerization, Synthesis.

USSR INDUSTRIAL DEVELOPMENT: SOVIET CHEMICAL INDUSTRY NO. 38. 27 Nov 62 [36]p. JPRS: 16390.
Order from OTS or SLA $3.60 63-13294

Trans. of Referativnyi Sbornik. Ekonomika Projyshlennosti (USSR) 1962, no. 8, p. 112-113; and from Pravda, Moscow (USSR) 1962, 16 Sep; Stroitel'naya Gazeta (USSR) 1962, 25 July; 8 Aug; Ekonomicheskaya Gazeta (USSR) 1962, no. 38[59] p. 2, 34, 39.

DESCRIPTORS: *Industrial production, *Chemical industry, Industrial plants, Economics, Construction, *Tires, Vehicles, Tractors, Maintenance, Paints, Sulfuric acid.

Contents:
Production improvement at the Yaroslavl' tire plant, by V. Chesnokov
Reliable tires for motor vehicles and tractors
Patriotic initiative of the Yaroslavl' tire workers
Output of hundreds of thousands of new tires
Lagging construction of the Sterlitamak chemical plant, by A. Anokhin and M. Bukhanov
Construction of the Nevinnomyssk nitrogen fertilizer plant, by I. Matyushchenko and A. Paren'kov
Level of production concentration in the chemical industry of the USSR, by Z. Kir'yanova
For prevention maintenance of tires, by G. Mamedov
Poor production at the Zagorsk lacquer and paint plant, by P. Kazakov
Lagging production of sulfuric acid.

USSR INDUSTRIAL DEVELOPMENT: SOVIET CHEMICAL MACHINE BUILDING NO. 12. 19 Nov 62 [29]p. JPRS: 16229.
Order from OTS or SLA $2.60 63-13357

Trans. of Khimicheskoe Mashinostroenie (USSR) 1962 [v. 4] no. 5, p. 1-3, 12, 42-44; and from Stroitel'naya Gazeta (USSR) 1962, 21 Sep, p. 2; Rabochaya Gazeta (USSR) 1962, 18 Sep, p. 1; Kazakhstanskaya Pravda (USSR) 1962, 11 Sep, p. 1; Sovetskaya Rossiya (USSR) 1962, 21 Aug, p. 4; 8 Sep, p. 2.

DESCRIPTORS: *Industrial production, Chemical industry, *Chemical engineering, Chemistry, Machines, Construction, Vacuum pumps, Liquid level gages, Electric filters, Sedimentation, Separation, Oil filters, Pipes, Plastic tubing, Glass, Distilling plants, Ceramic materials, Motion picture film, Color photography, Dehydration, Photographic chemicals, Compressors, Tires, Labor, Climatic factors, Quality control.

Contents:
Phaolyte rotary vacuum pump with liquid plunger, by V. I. Teteryukov and others
Level indicator for filters, by F. M. Sobolevskii
Automatic chamber filter press FPAK 25-30K, by N. T. Rogov
Installation for continuous production of glassplastic pipes, by A. T. Sidenko
Rectification column with ceramic details
Operating and loading a drying installation for chemicals of color motion pictures
Membrane three-stage compressor
In the interest of great chemistry
In search of reserves
Assembly men on duty, by L. Beketov
Rain is not an obstacle any more
Kurgan resolves to improve construction quality.

Jacquet, P. A.
ELECTROLYTIC POLISHING OF LEAD BRONZES, ZINC AND MAGNESIUM. 23 Dec 46, 4p. (figs. omitted).
Order from SLA $1.10 62-18348

Trans. of Revue Générale de l'Électricité (France) 1945 [v. 54, no. 8] p. 239-241.

DESCRIPTORS: *Electrolytic polishing, Copper alloys, Lead alloys, Zinc alloys, Magnesium alloys, Bronze, Tin alloys.

Kostyrev, O.
REMOTE LEVEL MEASURING IN RESERVOIRS. 12 July 62 [5]p. FTD-TT-62-849; AD-285 826.
Order from OTS or SLA $1.10 62-33002

Unedited rough draft trans. of Neftyanik (USSR) 1961 [v. 6] no. 11, p. 16-17.

DESCRIPTORS: *Petroleum industry, *Storage tanks, *Liquid level gages, Remote control systems.

The UDU-2 level indicator works on the principle of tracking the level with the aid of a float, floating on the surface of the petroleum in the reservoir. (Author)

Legrand, Charles.
HYDRATION OF NATURAL CELLULOSE. 22 Nov 49, 2p. (refs. omitted).
Order from SLA $1.10 62-18432

Trans. of [Academie des Sciences, Paris]. Comptes Rendus (France) 1948, v. 226, no. 24, p. 1983-1984 (pub. by Gauthier-Villars et Cie Paris).

DESCRIPTORS: *Cellulose chemistry, Ramie fibers, Cellulose, Hydrolysis.

Marsal, Dietrich.
THE FLOODING OF THE WELLS (Die Berechnung der Verwässerung von Erdöllagerstätten in Eindimensionaler Näherung. 3. Teil: Die Verwässerung der Sonden). Pt. 3 of Computation of Water Flooding of Petroleum Reservoirs in Unidimensional Approximation. [1962] [16]p. (foreign text included) 2 refs.
Order from SLA $1.60 62-16648

Trans. of Erdöl und Kohle (West Germany) 1957, v. 10, no. 4, p. 218-221.

DESCRIPTORS: *Petroleum, Sources, *Hydraulic reservoirs, Moisture, Water, *Hydrology, Fluid flow, Water injection, Mathematical analysis.

Okorokov, S. D., Golynko-Wolfson, S. L., and Korneev, V. I.
CHANGE IN STRENGTH OF DICALCIUM SILICATE AS A FUNCTION OF THE NATURE OF THE STABILIZING ADMIXTURE. [1962] 7p. 4 refs.
Order from OTS or SLA $1.10 62-14258

Trans. of [Tekhnologicheskii Institut imeni Leningradskogo Soveta]. Trudy (USSR) 1960, no. 56, p. 93-98. Another trans. is available from OTS or SLA $3.60 in 61-27056, LC-1042, Feb 61 [39]p.

DESCRIPTORS: *Calcium compounds, *Silicates, Synthesis, Bonding, Stabilization, *Binders, Cements.

Patrushev, D. A. and Mikulinskii, A. S.
MECHANISM OF THE REDUCTION OF PHOSPHATE ROCK, tr. by Bertha P. Klenova. 15 Dec 60, 8p. 8 refs. TVA-3891.
Order from OTS or SLA $1.10 62-24455

Trans. of #Zhur[nal] Priklad[noi] Khim[ii] (USSR) 1960, v. 33 [no. 4] p. 774-779.

DESCRIPTORS: *Phosphorites, *Ores, Coke, Reduction, Quartz, Carbon, Electric furnaces, Phosphates, Rocks.

The reaction between lump phosphorite ore and coke in the presence of quartz proceeds predominantly in the melt. The direct reduction with the participation of carbon monoxide and the diffusional reaction between phosphate and carbon occurs only to a small extent before the start of fusion. These reactions in the ore induce crystallochemical conversions with the formation of intermediate compounds containing phosphorus in different stages of oxidation. (Author)

Sheinman, A. B., Dubrovai, K. K. and others.
EXPERIMENTS IN UNDERGROUND GASIFICATION OF OIL LAYERS UNDER NATURAL CONDITIONS (Opyty po Podzemnoi Gazifikatsii Neftyanykh Plastov v Prirodnykh Usloviyakh). [1962] [58]p. (foreign text included) 1 ref.
Order from OTS or SLA $5.60 62-16669

Trans. of Neftyanoe Khozyaistvo (USSR) 1935, v. 28, no. 4, p. 48-61.

DESCRIPTORS: *Petroleum, Sources, Well drilling, Gases, Production, Thermodynamics, Combustion, Recovery, Geology.

Shekhtman, Yu. M.
THE FILTRATION OF A LIQUID CONTAINING SUSPENDED SOLID PARTICLES (O Fil'tratskk Zhidosti, Neyushchei Vzveshennye Tverdye Chastitsy). July 62 [10]p. 4 refs. RTS 2098.
Order from OTS or SLA $1.10 62-32483

Trans. of A[kademiya] N[auk] SSSR. Otd[elenie] Tekhn[icheskikh] N[auk]. Izv[estiya]: Mekhan[ika] i Mashinostr[oenie] 1959, no. 2, p. 205-207.

DESCRIPTORS: *Porous filters, Liquids, Particles, Colloids, Fluid flow.

Sheludyakov, L. N., Kir'yakov, G. Z., and Lyubimova L. S.
EXTRACTION OF METALS FROM MOLTEN LEAD SLAGS (SHAFT FURNACE SMELTING) BY CEMENTATION WITH CARBON SATURATED LIQUID IRON (Kompleksnoe Izvlechenie Metallov iz Rasplavlennykh Shlakov Shakhtnoi Svintsovoi Plavki Metodom Tsementatskii Zhidkim Chugunom Nasyshchennym Uglerodom). Sep 62 [11]p. 4 refs. RTS 2129.
Order from OTS or SLA $1.60 62-32957

Trans. of Akad[emiya] Nauk K[azakhskoi] SSR [Alma Ata]. Izv[estiya]. Ser[iya] Khim[icheskaya] 1958 [v. 3] no. 1(13) p. 38-45.

DESCRIPTORS: *Iron, *Liquid metals, Carbon, Shafts, Smelting, *Slags, *Lead, Melting, Metals, Separation, Distilling plants.

The cementation process of copper, lead, zinc and iron from molten waste slag of the Ust'- Kamenogorsk lead-zinc combine with carbon saturated liquid crude iron was studied at temperatures 1250, 1300, 1350 and 1400°C. It was established that cementation for 30 minutes, depending on temperature, results in the extraction from the slag of 94-99% copper, 90-98% lead, 40-90% zinc and 6-20% iron. The cementation with the exclusion of oxygen of the air from the gaseous reaction products enables to collect two types of lead-zinc metallic sublimates containing 0.3-3% and 58-60% lead. The extraction of metals from slags increases with the increased copper content in iron up to its saturation (3-5%). With increased lead content in the slag, because of a faster reduction rate than the distillation rate, the lead is not completely distilled and forms a separate phase under the iron layer. Some 80 to 90% of copper is extracted from copper-bearing irons by use of 1.3-1.6 the theoretical amount of sodium sulphide in a form of a matte containing 30-40% Cu_2S and 20% FeS. (Author)

Takashi, Yukichi, Aijima, Hayaho and others.
MOLECULAR WEIGHT CONTROLLING PROCESS OF MONOOLEFIN POLYMER. Nov 62, 11p.
Order from SA $19.00 SA Code-P-51

Trans. of published Japanese patent 1592/1962, 9 May 62, cl. 26-B-11 (26-B-121) (26-B-012) (13-F-1) appl. no. 11245/1960, 31 Mar 60, by Asahi-Kasei Industrial Co.

DESCRIPTORS: Polymers, *Ethylenes, *Molecular weight, Control, Catalysts, Aluminum compounds, Titanium compounds, Halides, Acetic acids.

Vinogradova, I. E. and Alekseeva, E. A.
THERMOGRAPHIC INVESTIGATION OF ANTI-ABRASIVE OIL ADDITIVES. 1 Aug 62 [13]p. 2 refs. FTD-TT-62-889. AD-284 128
Order from OTS or SLA $1.60 62-33072

Unedited rough draft trans. of Khimiya i Tekhnologiya Topliv i Masel (USSR) 1961 [v. 6] no. 7, p. 56-61.

DESCRIPTORS: *Additives, *Oils, *Abrasion, Heating, Stability, Iron, Chemical reactions, Calorimetry, Surfaces, Metallurgical analysis, Thermodynamics, Instrumentation.

It was shown that the anti-abrasive additives considered here enter into a reaction with iron in the range from 135°-195°. Metallographic studies of surfaces indicate that such temperatures are developed without seizing under standard limiting conditions of friction. Accordingly, therefore, the chemically active anti-abrasion additives take their effect up until the surfaces begin to seize. There is some correspondence between the intensity of the exothermic reaction with iron and the anti-abrasive activity in the test on the four-ball machine. The strong anti-abrasive additives after their reaction with iron give no further thermal effects indicating a change in aggregate state. The absence of any conversions of strong anti-abrasive additives following their reaction with iron indicates that the occurrence of seizing of the surfaces is not connected with the boiling, melting or decomposition of the compound. (Author)

Volkov, B. V., Martynenko, L. A., and Kochurova, S. A.
USE OF METHANOL FOR REGENERATION OF USED ACTIVATED CHARCOAL BY THE TREATMENT OF INDUSTRIAL EFFLUENT FOR REMOVAL OF ORGANIC SUBSTANCES FROM THEM. [1962] 6p. 11 refs.
Order from OTS or SLA $1.10 62-16746

Trans. of Gigiena i Sanitariya (USSR) 1961, v. 26 [no. 9] p. 83-84.

DESCRIPTORS: *Activated carbon, Regeneration, *Methanols, *Chemical waste, Purification, Steam.

Methanol is suitable for regeneration of used activated charcoal by the purification of industrial effluents from organic substances. The expenditure of methanol makes 8-15 volumes pro volume of regenerated charcoal. The process of regeneration of used charcoal with methanol consists of step of regeneration and the step of removing of methanol from charcoal by steam. Losses of methanol in the process of regeneration vary in limits 0.4-5.3 $1/m^3$ of purified water and depend on the degree of hermeticity of apparatus. The expenditure of steam for removing of methanol from charcoal makes 2.0-2.2 volumes pro volume of regenerated charcoal from which 0.6-0.7 volume are used for distillation of methanol. (Author)

Civil Engineering

[INSTITUTE FOR THE DEVELOPMENT OF WATER RESOURCES] "JAROSLAV CERNI". TRANSACTIONS, 1962, VOL. 9, NO. 22, tr. ed. by Elizabeth Tornquist. 1962, 79p. 30 refs. PL-480 Int.
Order from OTS $1.00 62-19470/1

Trans. of Institut za Vodoprivredu "Jaroslav Cerni". Saopstenja (Yugoslavia) 1962, v. 9, no. 22.

DESCRIPTORS: *Hydrology, *Water supplies, Storage, Drainage, Floods, *Hydroelectric power systems, *Rivers, Maps, Water filters, Evaporation, *Dams.

Contents:
Determination of maximum discharge run-off conditions in Yugoslavia, by D. Marjanovic
The function of the storage in Niksicko Polje, by D. Josimovic
The recharge of aquifiers from river waters, by M. Boreli and others
Filtration towards a drain system, by M. Boreli and M. Vukovic
On the Thornthwaite-Holzmann formula for evaporation computation, by F. Mesinger
Attempt at defining the hydrographic Neretva River basin based on a detailed hydrographic study of its tributaries, by M. Ristivojevic
Geotechnical investigations on the profile of Dubravica dam, by B. Colic.

Demidyuk, G. P., ed.
ACCOMPLISHMENT OF EXPLOSION WORKS IN QUARRIES: [SELECTED PORTIONS] tr. by Sergey Shewchuck. May 62 [135]p. 30 refs.
Order from OTS or SLA $10.50 UCRL Trans-827 (L)

Trans. of mono. Sovershenstvovanie Vzryunykh Rabot na Kar'erakh, Moscow, 1961, p. 118-129, 140-177, 230-239, 275-307.

DESCRIPTORS: *Mining engineering, *Blasting, Explosions, *Underground explosions, *Cratering, Boreholes, Fracture (Mechanics), Rocks.

Contents:
From experience of producing excavations by explosion, by A. N. Dashkov
Certain problems of explosions for throwout in grounds, by I. G. Spiridonov
Experimental studies of the mechanism of formation of an explosion crater in ground, by L. N. Marchenko
Direction of propagation of fissures formed during disruption of solid rocks by explosion, by V. K. Filippov
On the interaction of charges and crater formation during instantaneous explosion, by F. A. Belaenko and others
Main aspects for the planning of explosion works by the method of borehole charges, by A. S. Azarkovich and S. A. Davydov
On the problem of unification of the calculation of charges, by A. I. Morin.

Migin, S. I.
BASIC REQUIREMENTS FOR COMPACTING COHESIVE SOIL IN DAMS IN WINTER (Osnovnye Trebovaniya k Ukladke Svyaznogo Grunta v Plotiny v Zimnee Vremya) tr. by June Stevens. Sep 60 [21]p. (foreign text included) 1 ref. Bureau of Reclamation Trans. 378.
Order from OTS or SLA $2.60 62-25128

Trans. of Gidrotekhnicheskoe Stroitel'stvo (USSR) 1949, v. 18, no. 4, p. 7-10.

DESCRIPTORS: *Soils, *Dams, Construction, *Water supplies, Climatic factors, Freezing, Ice, Control, Stratification, *Foundations (Structures).

ABSTRACTS PERTAINING TO COMMUNIST CHINA IN SOVIET ABSTRACTS JOURNALS NO. 45 (AUTOMATION AND RADIO ELECTRONICS SERIES) [AND] ELECTRICAL ENGINEERING AND POWER ENGINEERING AND SERIES). 4 Dec 62 [12]p. JPRS: 16507.
Order from OTS or SLA $1.60 63-13277

Trans. of selected abstracts from Referativnyi Zhurnal. Avtomatika i Radioelektronika (USSR) 1962, no. 7 and Referativnyi Zhurnal. Elektrotekhnika i Energetika (USSR) 1962, nos. 15-16.

DESCRIPTORS: *Abstracts, *Automation, Radio equipment, *Electronics, *Electrical engineering, Electrical equipment, Power, Engineering, Lighting equipment, China.

Contents:
Automation and telemechanics
Electronic and ionic instruments
Radio physics and radio engineering
Radio apparatuses
Lighting and infrared engineering.

EXTREMAL CONTROL SYSTEMS. 26 Dec 62 [36]p. 20 refs. JPRS: 16837.
Order from OTS or SLA $3.60 63-13639

Trans. of Avtomatyka (USSR) 1962, no. 4, p. 34-59.

DESCRIPTORS: *Control systems, Operation, Dynamics, Circuits, *Relay control systems, Oscillation, Equations of motion, *Adaptive control systems, Experimental data.

Contents:
Dynamic regimes of step control systems, by P. Y. Akinin
Auto-oscillation in a relay extremal system, by B. O. Aref'ev
Experimental investigation of self-adjusting (extremal) systems with a transitory memorizing of the extremum, by V. O. Mitroshyn and P. I. Chinaev.

INFORMATION AND REPORTS. 15 June 60 [5]p. 2 refs. USASIA: SC-130a/60; JPRS: R-762-D.
Order from OTS or SLA $1.10 60-31263

Trans. of Radio und Fernsehen (German Democratic Republic) 1959, v. 8, no. 23, p. 722.

DESCRIPTORS: *Radio equipment, Passenger vehicles, Radio, *Submarines, Oceanographic vessels, Depth, Stabilization, Extraterrestrial bases, *Satellite vehicles, Electronic equipment, Communication equipment, Photographic equipment, Photographs, Transmission, Video signals.

INFORMATION AND REPORTS. 15 June 60 [4]p. USASIA: SC-134a/60; JPRS: R-766-D.
Order from OTS or SLA $1.10 60-31267

Trans. of Radio und Fernsehen (German Democratic Republic) 1960, v. 9, no. 3, p. 66.

DESCRIPTORS: *Electronic equipment, Television equipment, Traveling wave tubes, Printed circuits, Magnetic fields, Reports.

INFORMATION AND REPORTS. 6 July 60 [7]p. (figs. omitted). USASIA: SC-131/60; JPRS: R-1097-D.
Order from OTS or SLA $1.10 60-31673

Trans. of Radio und Fernsehen (German Democratic Republic) 1959, v. 8, no. 24, p. 749-750.

DESCRIPTORS: *Radio transmitters, Radio receivers, *Pulse analyzers, *Analog computers, *Flowmeters, Reports.

Contents:
New frequencies of the transmitters of the DDR in the medium wave region
Trade war about Japanese transistor radios?
New Soviet equipment
The Soviet Pulse Analyzer BMA-50
MN-10, an electronic miniature computer
A radioactive flow meter

INFORMATION AND REPORTS. 29 July 60 [6]p. (illus. omitted). USASIA: SC-135a/60; JPRS: R-962-D.
Order from OTS or SLA $1.10 60-31444

Trans. of Radio und Fernsehen (German Democratic Republic) 1960, v. 9, no. 4, p. 98.

DESCRIPTORS: *Communication systems, Statistical data, Television equipment, Reports.

Contents:
Statistic of radio- and television participants in the DDR
New developments of the measurement-, control- and steering engineering based on the IEB-system on the Leipzig Spring Fair
The TV channel translators in the DDR

NEWS OF HIGHER EDUCATIONAL INSTITUTIONS, MINISTRY OF HIGHER AND SECONDARY SPECIALIZED EDUCATION, RADIO ENGINEERING SERIES, 1962, VOL. 5, NO. 3. 16 Nov 62 [308]p. JPRS: 16211.
Order from OTS or SLA $19.75 63-13375

Trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Radiotekhnika (USSR) 1962, v. 5, no. 3, p. 301-413.

DESCRIPTORS: *Electronics, Engineering, *Radio equipment, Instrumentation, Statistical processes, Probability, Antennas, Antenna radiation patterns, Waveguides, Impedance, Signals, Digital computers, Data processing systems, Computers, Inductance, Paramagnetic resonance, Electrostatic capacitance, Resistance, Transmission lines, Microwave frequency, Feedback amplifiers, Electric connectors, Electromagnetic waves, Semiconductors, Voltage, Diodes,

Amplifiers, Pulse generators, Noise (Radio), Radio communication systems, Q meters, Voltage regulators, Photoelectric cells, Noise, Reduction, Signal-to-noise ratio.

Contents:
Instruments for the determination of integral and differential probability distribution functions of stationary random processes, by V. S. Gorbenko
Experimental investigation of surface wave antennas which radiate a field because of the transverse curvature of waveguides, by V. G. Voropaeva
Field in the near zone of a source with concentration of the impedance plane, by M. S. Bobrovnikov, and V. P. Smirnov
Estimates of the maximum likelihood parameters of normal signals, by P. A. Bakut
Typical cell for logical blocks of digital computers, by G. I. Kaganova, and A. A. Lukin
Redistribution of signal probabilities in transmission systems with data processing, by V. A. Geranin and others
Investigation of self-excitation conditions of a parametron with variable inductance, by Yu. N. Efimov
Generalized linearization methods in the theory of nonlinear oscillations in parametric resonators, by R. M. Kantor
Calculation of the capacitance and characteristic resistance of an asymmetrical strip line, by I. S. Kovalev
Calculation of uniform line with arbitrary number of lumped inhomogeneities, by N. T. Bova and others
Design of two-stage pulse amplifier with complex feedback, by I. A. Dubrovskii
Use of accumulation effect for the measurement of the lifetime of minority carriers, by V. V. Borzenko, and I. A. Ryzhak
Electromagnetic surface waves over a multirow ridge, by A. S. Zav'yalov,
Semiconductor device for lengthening pulses, by E. D. Prokhorov, and N. A. Shekhovtsov
On the design of buffer amplifiers with electron tubes, by Yu. L. Mishin
Generator of nanosecond pulses with nonlinear delayed feedback, by Yu. K. Bogatyrev
Analysis of operation of a pulse selector as a source of transient noise in radio relay communication systems with time multiplexing of channels, by A. I. Dzygalo
One-channel optimizer with system for coarse and fine search, by M. Gisek
Carbon pile voltage stabilizer with electronic control, by G. S. Veksler, and N. F. Vollerner
On photoelectric analysis, by V. A. Cherepanov
Concerning the article by M. K. Belkin "On the noise level in regeneration": review by V. P. Lesauskis, and K. M. Barshauskas
Reply by the author, by M. K. Belkin

PREVIEWING THE LEIPZIG SPRING FAIR. 29 July 60 [16]p. (figs. omitted). USASIA: SC-135b/60; JPRS: R-963-D.
Order from OTS or SLA $1.60 60-31445

Trans. of Radio und Fernsehen (German Democratic Republic) 1960, v. 9, no. 4, p. 99-102.

DESCRIPTORS: Electronic equipment, *Television equipment, *Pulse generators, *Frequency multipliers, *Signal generators, *Oscilloscopes, *Radiotelephones, *Intercommunication systems, *Hearing aids.

Technical data are given for the following equipment of East German manufacture: "Patriot" FE 847 television receiver; "Berolina" television reciever; FK2 remote camera; TS 1-8 trigger generator; IS 1-8 pulse generator; VS 1-5 frequency multiplier; RS 1-8 square-wave generator; BV-9 broad-band amplifier; IS 2-5 double-pulse generator; SS-10 centimenter signal generator; OG 1-10 pulse-oscilloscope; DT 1-5 pulse delay set; portable radiotelephony set; Welton-WL 3 intercom equipment; H 30 transistor hearing aid.

USSR INDUSTRIAL DEVELOPMENT: SOVIET ELECTRICAL EQUIPMENT NO. 27. JPRS: 16216.
Order from OTS or SLA $1.60 63-13353

Trans. from Pravda, Moscow (USSR) 1962, 2 Aug, p. 2; 7 Aug, p. 1; Kommunist, Erevan (USSR) 1962, 3 Aug, p. 4; Kommunist, Tadzhikistana (USSR) 1962, 3 Aug; Ekonomicheskaya Gazeta (USSR) 1962, no. 32 [53]p. 47; no. 33[54]p. 45; Vechernii Leningrad (USSR) 1962, 21 June, p. 2; 22 June, p. 2.

DESCRIPTORS: *Industrial production, *Electrical equipment, Hydroelectric power systems, *Electrical industry, Electrical engineering, Generators, Electric machinery, Design, Electric power production, Electric motors, Labor, Washing machines, Ceramic materials, Insulating materials, Electric insulation, Scheduling, Production, Turbine blades, Water, Cooling, Mica, Sheets, Electric discharges.

Contents:
New hydrogenerator designed for the Saratovsksya GES
Products of Armenian electrical-engineering industry in wide demand
Public lectures for electrical workers
New electrical equipment plant
Wide popularity of new "Nistru" washing machine
Slavyansk ceramic-insulator plant fails to meet delivery schedules
Consumer goods production goals not being met in many sovnarkhozes, by B. Evseev
Generators of 500,000 kw rating designed for sayanskaya hydroelectric power station, by L. Molotkov
Mica sheet: a novel insulator, by A. Volodin

USSR INDUSTRIAL DEVELOPMENT: SOVIET ELECTRICAL EQUIPMENT NO. 28. 30 Nov 62 [23]p. JPRS: 16437.
Order from OTS or SLA $2.60 63-13310

Trans. of Promyshlennaya Energetika (USSR) 1962 [v. 17] no. 8, p. 41; Vestnik Elektropromyshlennosti (USSR) 1962 [v. 33] no. 10, p. 79-80; Promyshlennost' Armenii (USSR) 1962 [v. 5] no. 7, p. 35-39; no. 9, 34-35; and from Pravda, Leningrad (USSR) 1962, 8 Aug, p. 4; Sovetskaya Moldaviya (USSR) 1962, 8 Aug, p. 3; Trud, Moscow (USSR) 1962, 11 Aug, p. 1; Pravda, Moscow (USSR) 1962, 8 Aug, p. 1.

DESCRIPTORS: *Industrial production, *Electrical equipment, Induction motors, Aluminum wire, Electric motors, Electrical engineering, Electrical industry, Electric machinery, Electric wire, Generators,

Electric power production, Ceramic materials, Insulating materials, Electric insulation, Pumps, Wire-winding machines, Electric cables, Commerce.

Contents:
New electrical equipment
A new 0.27-100 kw series of explosion-proof induction motors, by O. D. Gol'dberg
Production of electrical induction motors with aluminum windings, by A. Nikogosyan
The SGD 12-46-12 synchoronous generator built by the Armenian electrical equipment plant imeni V. I. Lenin
Power engineering and ceramics
Kishinev electric machine-building plant imeni Frunze cited
Best tool-work productivity, by V. Knyp
Moscow dinamo plant to participate in Brno and Zagreb International Fairs.

USSR INDUSTRIAL DEVELOPMENT: SOVIET POWER MACHINERY NO. 5. 3 Dec 62 [44]p. JPRS: 16495.
Order from OTS or SLA $4.60 63-13365

Trans. of Partiinaya Zhizn' (USSR) 1962, no. 19, p. 15-19; Izvestiya Vysshikh Uchebnykh Zavedenii. Energetika (USSR) 1962 [v. 5] no. 8, p. 123-125; Energetik (USSR) 1962 [v. 10] no. 10, p. 38; Promyshlennaya Energetika (USSR) 1962 [v. 17] no. 10, p. 54-55; and from Rabochaya Gazeta (USSR) 1962, 19 Oct, p. 2.

DESCRIPTORS: Industry, *Industrial production, Power, Machines, Production, Conferences, *Gas turbines, Turbines, *Boilers, Steam power plants, *Electric power production, Power plants, Heat exchangers.

Contents:
Production conferences and enterprises economics at the Neva machine-building plant, by V. Andreev and others
High capacity gas turbine problems, by N. P. Stul'nikov in the technical councils
Giant strides in electrical power, by L. Shubenkoshubin
Thermal engineering.

Aleksandrov, V. S., Voronetskii, B. B., and others.
PRESENT STATE OF DEVELOPMENT OF AUTOMATED ELECTRIC POWER SUPPLY. [1962] [11]p.
AERDL T-1509; AD-276 804.
Order from OTS or SLA $1.60 62-25342

Trans. of [Vestnik Elektropromyshlennosti (USSR) 1961, v. 32, no. 10, p. 7-12].

DESCRIPTORS: *Power supplies, Industrial equipment, *Electric power production, *Electrical equipment, Automatic, Electric machinery, Electric motors, Transducers, Blast furnaces, Rolling mills, Mining engineering, Power plants, Paper industry, Marine engines, Electric cables, Magnetic amplifiers.

Bartenev, L. S., Glebovich, G. V., and Ptitsin, K. N.
A SUPER-HIGH-SPEED PULSE OSCILLOGRAPH. [1962] [4]p. 2 refs. [DSIR] NLL M.6311.
Order from OTS or SLA $1.10 62-25949

Trans. of #Pribory i Tekhnika Eksperimenta (USSR) 1961, no. 6, p. 80-83.

DESCRIPTORS: *Electronic equipment, *Oscillographs, Specifications, Circuits.

A description is given of an oscillograph having a maximum scanning speed of 2×10^{10} cm./sec. with a timing inaccuracy of not more than 1.5×10^{-11} sec., capable of recording pulse processes of 10^{-10} sec. duration. (Author)

Beckamnn, Petr and Kühn, Udo.
THE EQUIPMENT OF A 1,300 MC RADIO LINK BETWEEN PRAGUE AND KOLBERG NEAR BERLIN. 15 June 60 [8]p. (figs. omitted) 1 ref. USASIA: SC-134b/60; JPRS: R-767-D.
Order from OTS or SLA $1.10 60-31268

Trans. of Radio und Fernsehen (German Democratic Republic) 1960, v. 9, no. 3, p. 71-73.

DESCRIPTORS: *Radio communication systems, Radio equipment, Radio transmission, Tests, Scattering, Periodic variations.

A summary of preliminary results of tests with a tropospheric propagation link is coupled with a brief description of the equipment employed.

Bogomolov, A. M. and Litvinov, G. I.
A TELEMETRY SYSTEM FOR OBJECTS HAVING A LARGER NUMBER OF RECEIVING POINTS THAN SENDING POINTS. 31 Aug 62 [7]p. FTD-TT-62-969; AD-284 146.
Order from OTS or SLA $1.10 62-33058

Unedited rough draft trans. of Soviet patent 141679 (663698/26) 16 Apr 60.

DESCRIPTORS: *Telemeter systems, Pulse generators, Pulse counters, Trigger circuits, Memory devices, Coding.

A telemetry system for objects with a larger number of receiving points than sending points and with conversion of information signals to binary code at the sending point is described. It differs in that, in order to simplify equipment at receiving points and make it possible to receive on standard number-printers, binary-code memory cells and a binary-to-decimal code converter are installed at the sending point. (Author)

Brodskii, A. I.
PELLICULAR BOLOMETER (THERMISTOR) FOR MEASURING POWER IN MILLIMETER WAVE RANGE. 12 July 62 [5]p. FTD-TT-62-916; AD-283 879.
Order from OTS or SLA $1.10 62-32537

Unedited rough draft trans. of [Russian] patent 140104, appl. no. 687652/26, 1960.

DESCRIPTORS: *Bolometers, *Thermistors, Design, Power, Microwaves, Power meters, Waveguides.

Pellicular bolometer (thermistor) for measuring power in mm wave range, characterized by the fact that for the purpose of eliminating the shorted piston, reducing the nonequivalence of temperature displacement and for the improvement of matching, the absorbing film in it is made in form of a V-shaped wedge and situated in the plane of an electric field of basic wave. (Author)

Bruma, Marc and Marx, Rose.
IMPROVEMENTS APPLIED TO DEVICES EMPLOYING MAGNETIC RESONANCE, PARTICULARLY TO SPECTROGRAPHS WITH ELECTRONIC PARAMAGNETIC RESONANCE. [1962] 8p.
Order from OTS or SLA $1.10 62-16382

Trans. of French patent [application] PV. 769,421, appl. 3 July 58.

DESCRIPTORS: *Paramagnetic resonance, Magnetic spectrometers, Generators, Feedback.

Devices employing magnetic resonance, particularly spectrographs with electronic paramagnetic resonance, may be provided with means for withdrawing in a cavity a small fraction (for example of the order of 1%) of the electromagnetic energy supplied by a generator and for injecting it again in suitable phase to the generator, preferably with the aid of a hyperfrequency circulator with three paths wedged between the output of the generator and a magic T-tube or a circulator taking its place. (Author)

Chichinadze, V. K. and Charkviani, O. A.
PROBLEM OF EMPLOYING AUTOMATIC TUNING SYSTEMS FOR THE AUTOMATION OF PROCESSES CONNECTED WITH THE CONSTRUCTION OF AUTOMATIC CONTROL SYSTEMS. 5 June 62 [24]p. FTD-TT-62-748.
Order from OTS or SLA $2.60 62-33088

Unedited rough draft trans. of mono. K Voprosu Primeneniya Samomastraivayushchikhsya Sistem dlya Avtomatizatsii Protsessov Konstruirovaniya Sistem Avtomaticheskogo Upravleniya, n.p., n.d., 20p.

DESCRIPTORS: Automation, *Control systems, Construction, Synthesis, *Tuning devices, Linear systems, Nonlinear systems, Corrections, Transients.

In this report are given several examples of automatic synthesis of control devices intended for certain linear and nonlinear systems. The mentioned synthesis is realized by an automatic tuning (adaptive) system, which carries out search in accordance with the law of random numbers. As result of the experiment the automatic synthesis of complex automatic control devices has been realized with success. The mentioned synthesis method can be applied in the presence of a real object and with the aid of modeling the equations of the object on a continuous action computer as well. The time of search for the purpose of finding the sought for system differs by several minutes to several hours. To reduce the searching time the modeling of object equations should be realized at reduced time scale. (Author)

Clarke, Ford K., Eischular, Harry K., and McMayphon, John F.
A SEMICONDUCTOR DEVICE: [IMPROVED METHOD FOR ENCAPSULATING SEMICONDUCTOR ELEMENTS]. [10 Oct 61] 5p. (figs. omitted).
Order from OTS or SLA $1.10 62-16320

Trans. of published Japanese patent SHO 36-15209, 4 Sep 61, application no. SHO 34-36728, 26 Nov 59, by Philco Corp., USA (Priority: USA, 24 Dec 58). Another trans. is available from WBI, 10 Oct 61.

DESCRIPTORS: *Semiconductors, Encapsulation, Containers, Seals, Electric connectors.

Crebert, Th.
NEW METHODS OF TESTING ENAMELED WIRE. [1962] 3p.
Order from SLA $1.10 62-18168

Trans. of ETZ [Electrotechnische Zeitschrift. Ausgabe A. Zentralblatt für Elektrotechnik] (Germany) 1942, v. 63, no. 41/42, p. 503-504.

DESCRIPTORS: *Wire, *Enamel coatings, Test methods, Instrumentation, Conductors.

Drozdov, N. G., Kukarin, A. I. and others.
AN ELECTROSTATIC GENERATOR. 7 May 62 [10]p. 3 refs. FTD-TT-62-35.
Order from OTS or SLA $1.10 62-32278

Unedited rough draft trans. of Elektrichestvo (USSR) 1961, no. 4, p. 48-50.

DESCRIPTORS: *Electrostatic generators, Generators, Design, Operation, Dielectrics, Dielectric properties.

Ac and dc electrostatic generators are described that have stators made of plexiglas and teflon. The rotors, plexiglas cylinders with metal plates, are inside the stator.

Elinson, M. I. and Gor'kov, V. A.
A DEVICE FOR GENERATING SHORT-PERIOD ELECTRON BEAMS. 2 May 62 [5]p. FTD-TT-62-291.
Order from OTS or SLA $1.10 62-25407

Unedited rough draft trans. of Soviet patent 137545 (466917/26) 16 Jan 58, 2p.

DESCRIPTORS: *Electron beams, Generators, Cathodes, Cavity resonators, Waveguides, Design.

To obtain monochromatic electron beams with a high current density, an autoelectronic cathode (or several cathodes) which is either a part of the resonator wall (waveguide) or a spike, and the resonator (waveguide) itself is located in a vacuum. A part of the wall of the resonator (waveguide) can be made as a fine-structure grid for the electron beam lead.

Gonningen, H.
THE THERMAL LAWS OF THE PAPER D. C. CONDENSER. [1962] 10p. (figs. tables refs. omitted).
Order from SLA $1.10 62-18368

Trans. of ETZ [Elektrotechnische Zeitschrift. Ausgabe A. Zentralblatt für Elektrotechnik] (Germany) 1944 [v. 65] no. 23/24, p. 233-237.

DESCRIPTORS: *Capacitors, *Paper capacitors, Direct current, Operation, Construction, Thermal stresses, Electric potential, Electric insulation, Surface area, Thermal conductivity.

The thermal questions, laws and dangers are discussed indication is given of their importance for the operation and construction of the condenser. (Author)

Gorozhanskii, B. N.
INVESTIGATION OF R-F MOTORS. 19 Sep 62 [13]p. 8 refs. FTD-TT-62-1126, AD-286 577
Order from OTS or SLA $1.60 62-33549

Unedited rough draft trans. of mono. Issledovaniya po Fizike i Radiotekhnike, n.p., 1962, p. 3-13 (Trudy Instituta, no. 8).

DESCRIPTORS: Radiofrequency, *Induction motors, *Electric motors, Synchros, Electromechanical converters, Electromagnetic waves, Oscillation, Polarization tests.

Problems concerning direct conversion of energy of high frequency electromagnetic oscillations into mechanical energy are discussed. Results obtained from theoretica and experimental investigations of r-f asynchronous and synchronous motors, are listed. (Author)

Grinshtein, V. A.
POWER RELAY USING SEMICONDUCTORS. [1962] [4]p. C.E. Trans. 2279; [DSIR] NLL M. 6015.
Order from OTS or SLA $1.10 62-25926

Trans. of Elektrichestvo (USSR) 1961, no. 5, p. 70.

DESCRIPTORS: *Electric relays, Power, Circuits, *Semiconductors.

Hennig, H.
NEW MODELS OF METALLIZED PAPER CONDENSERS. [1962] 2p. (figs. omitted).
Order from SLA $1.10 62-18369

Trans. of ETZ [Elektrotechnische Zeitschrift. Ausgabe A. Zentralblatt für Elektrotechnik] (West Germany) 1950 [v. 71, no. 8/9] p. 196-197.

DESCRIPTORS: *Capacitors, *Paper capacitors, Metal coatings, Electronic equipment.

Hetzel, W.
MEASUREMENT OF THE ELECTRICAL PROPERTIES OF ENAMELED WIRE. [1962] 9p. (figs. refs. omitted).
Order from SLA $1.10 62-18367

Trans. of ETZ [Elektrotechnische Zeitschrift. Ausgabe A. Zentralblatt für Elektrotechnik] (Germany) 1943, v. 64 [no. 39/40] p. 529-532.

DESCRIPTORS: *Wire, *Enamel coatings, Electrical properties, Test methods, Electric wire, Insulating materials, Electric insulation.

Arrangement and circuit for the testing of defects, details of the feed device for the wire, resolving power and sensitivity of response of a test set for determining the number of defects as well as the measurements for their control are given. The term "continuous defect" is discussed and an additional characteristic of the defect-characteristics of enameled wire were suggested by obtaining data on a length of wire. A change in the arrangements resulted in an increase of the sensitivity of response and of the resolving power. Furthermore, a description is given of the circuit for the making of the voltage tests using mechanical devices for the loading of the wire by means of a weight and for feeding the wire, especially at elevated temperatures as well as of a series-test device for carrying out measurements on the wire without any additional stress and in a heated condition. The test-coils for the measurement of the dielectric loss factor and insulation resistance, the artificial circuit for the windings with auxiliary capacitances and auxiliary conductors were discussed and also, their participation in the measurements of the loss factor by bridge methods, by replacement of the auxiliary capacitance K_{20} and in the measurement of the insulation resistance at room temperature and humidity as well as at elevated humidities and temperatures. (Author)

Ioffe, A. F.
EXAMPLES OF THERMOELECTRIC DEVICES.
12 Sep 62 [34]p. 1 ref. FTD-TT-62-226; AD-286 567.
Order from OTS $1.00 63-11520

Unedited rough draft trans. of mono. Poluprovodnikovye Termoelementy [Thermal Semiconductor Devices] Moscow, 1960, chap. 4, p. 126-153.
Trans. of the complete mono. is available from OTS or SLA $9.10 as 62-24498, USASIA Trans-1308, 15 May 62 [109]p.

DESCRIPTORS: *Thermoelectric generators, Generators, *Refrigeration systems, *Thermostats, Cooling, Radio equipment, Electronic equipment, *Microtomes, Artificial insemination, Animal, Medical equipment, *Microscopes, *Hygrometers, Condensation, Air conditioning equipment, Thermal radiation, Surfaces, Temperature, Measurement, Instrumentation, Crystallization, Thermometers, Semiconductors, Heating, *Thermoelectricity

Contents:
Thermoelectric generators
Thermoelectric refrigerators, thermostats, and coolers
Heating and [air-] conditioning
Meter for radiant fluxes and heat flows
Crystallization
High-temperature thermoelements

Ivanova, V. D. and Mikhalevskii, V. S.
PLASMA FREQUENCY-CONTROL OF A TRAVELING-WAVE-TUBE TYPE OSCILLATOR. 13 Feb 62 [11]p. 4 refs. FTD-TT-61-442.
Order from OTS or SLA $1.60 62-23676

Unedited rough draft trans. of #Radiotekhnika i Elektronika (USSR) 1961, v. 6, no. 11, p. 1888-1893.

DESCRIPTORS: *Backward-wave oscillators, *Traveling wave tubes, *Plasma physics, Frequency, Control, Electrical properties, Impedance, Electron tubes, Oscillators.

The possibility of controlling the frequency of a TWT type oscillator into which a plasma tube has been inserted by varying the natural frequency of the plasma was studied experimentally. In the decimeter wave band a frequency change having a jump-like nature was obtained in a ratio of about 1:2. The characteristic impedances and dispersion characteristics for an unbounded plasma, and also the dispersion characteristics taking into account the finite thickness of the plasma tube, are theoretically calculated. A qualitative correspondence between the theory and experiment is established. (Author)

Kawanishi, Iwao and Jo, Yoshinaga.
A PROCESS FOR HERMETICALLY SEALING SEMICONDUCTOR DEVICES. [Aug 61] [2]p. (foreign text included).
Order from OTS or SLA $1.10 62-16323

Trans. of published Japanese patent SHO 36-11088, 20 July 61, application no. SHO 34-9889, 31 Mar 59, by Tokyo Shibaura Electric Co., Ltd.
Another trans. is available from WBI, Aug 61.

DESCRIPTORS: *Semiconductors, Seals, Encapsulation, Soldering.

Khoryak, G. M.
HIGH-SPEED COMBINED CAMERA TUBE. 16 May 62 [16]p. 10 refs. FTD-TT-62-574; AD-277 652.
Order from OTS or SLA $1.60 62-25754

Unedited rough draft trans. of Tekhnika Kino i Televideniya (USSR) 1961 [v. 5] no. 10, p. 51-56.

DESCRIPTORS: *Camera tubes, *Iconoscopes, *Electron optics, *Phototubes, Sensitivity, Mathematical analysis, Photosensitivity, Signal-to-noise ratio, Television equipment, Detection, Electron tubes.

The feasibility of an "ideal" camera tube is indicated. Installation of an electronic-optical converter and combined tube is considered. The conclusion of threshold illuminance of a combined tube, indicated, on the basis of sensitivity, that a combined tube is closer to "ideal."

Koltun, M.
SOLAR BATTERIES OF THE FUTURE. 5 Sep 62 [7]p. FTD-TT-62-972. AD-286 578
Order from OTS or SLA $1.10 62-33537

Unedited rough draft trans. of Nauka i Zhizn' (USSR) 1961 [v. 28] no. 10, p. 63-64.

DESCRIPTORS: *Batteries and components, *Energy conversion, *Solar batteries, Semiconductors, Silicon, Lattices.

Korshunov, Yu. M.
METHODS FOR IMPROVING THE INTERFERENCE RESISTANCE OF DIGITAL SYSTEMS OF AUTOMATIC CONTROL. 30 Aug 62 [14]p. 3 refs. FTD-TT-62-1108.
Order from OTS or SLA $1.60 62-33543

Unedited rough draft trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Priborostroenie (USSR) 1961, v. 4, no. 5, p. 76-83.

DESCRIPTORS: *Digital systems, Automatic, Control, *Control systems, Interference, Resistance, Distortion, Detection, Coding, Errors, Signals, Transmission.

On the basis of an analysis of the action of interferences in digital systems there are discussed various methods of detecting distortions and the restoration of the input signal. A scheme is proposed based on the predicted future values of the signal. A method is considered for compensating the errors brought about by retarding the signal in its transmission and conversion. (Author)

Kunze, Fritz.
VOLTAGE STABILIZER TUBES IN THE DDR. 15 June 60 [4]p. USASIA: SC-134c/60; JPRS: R-768-D.
Order from OTS or SLA $1.10 60-31269

Trans. of Radio und Fernsehen (German Democratic Republic) 1960, v. 9, no. 3, p. 85.

DESCRIPTORS: *Electron tubes, *Voltage regulators, Cathodes (Electron tubes).

Letov, A. M.
STABILITY IN NONLINEAR CONTROL SYSTEMS, tr. by J. G. Adashko. 1961 [336]p.
Order from Princeton U. Press, N. J. $8.50

Trans. of mono. [Ustoichivost' Nelineinykh Reguliruemykh Sistem, Moscow, 1955].

DESCRIPTORS: *Nonlinear systems, *Control systems, Stability.

Lur'ye, A. I. and Rozenvasser, E. N.
METHODS OF CONSTRUCTING A LYAPUNOV FUNCTION IN THE THEORY OF NONLINEAR CONTROL SYSTEMS. 29 June 62 [24]p. FTD-TT-62-712; AD-283 904.
Order from OTS or SLA $2.60 62-32691

Unedited rough draft trans. of mono. International Congress of the International Federation on Automatic Control (no. 1) Moscow, 27 June-7 July 60. Proceedings: The Theory of Continuous Systems Special Mathematical Problems, Moscow, 1961, p. 709-722.

DESCRIPTORS: *Nonlinear systems, *Control systems, *Partial differential equations, Automatic, Matrix algebra, Theory, Differential equations.

Morgulis, N. D.
DIRECT CONVERSION OF THERMAL POWER TO ELECTRICAL POWER. 16 Jan 62 [13]p. FTD-TT-61-226; AD-270 759.
Order from OTS or SLA $1.60 62-23368

Unedited rough draft trans. of Akademiya Nauk SSSR. Vestnik, 1961 [v. 31] no. 9, p. 25-31.

DESCRIPTORS: *Power supplies, *Electric power production, Thermoelectricity, Thermionic emission, Plasma physics, Magnetohydrodynamics, Ferroelectricity, Ferromagnetism, Thermal radiation, Heat, High temperature research, Electricity.

An all-out increase in the efficiency of electrical power installations having various capacities and purposes is the most important problem of modern power engineering. At the same time, new problems require the development of some type of device for cosmic rockets, artificial satellites, etc. All these considerations require the development of new, more effective methods acceptable for various purposes of converting thermal (nuclear) energy into electrical energy. Investigations in recent years, which still have a very limited laboratory and prototype nature, showed that in solving the problem of the direct conversion of thermal energy to electrical there are completely new methods which use 2 direct (thermoelectric and thermionic) and 1 semi-direct (magnetogasdynamic) methods. These 3 methods are briefly examined. (Author)

Niesen, H.
TESTING THE BEHAVIOR OF INSULATING ENAMELS (WIRE VARNISH) WITH THE ERICHSEN TESTER. [1962] 3p. (figs. refs. omitted).
Order from SLA $1.10 62-18231

Trans. of ETZ [Elektrotechnische Zeitschrift. Ausgabe A. Zentralblatt für Elektrotechnik] (Germany) 1941, v. 62, no. 4, p. 73-75.

DESCRIPTORS: *Insulating materials, Electric insulation, *Wire, *Enamel coatings, Varnishes, Test equipment.

Raikhrudel', E. M. and Smirnitskaya, G. V.
A MULTI-BEAM HIGH-VACUUM GAS-DISCHARGE PUMP. 14 May 62 [4]p. FTD-TT-62-370.
Order from OTS or SLA $1.10 62-25550

Unedited rough draft trans. of Soviet patent 139375 (692175/25) 10 Jan 61.

DESCRIPTORS: *Gas discharges, Pumps, *Vacuum pumps, Design, Discharge tubes, Electrodes, Cathodes, Anodes, Ionization, Magnetic fields.

The ordinary multi-beam high-vacuum gas-discharge pump with a discharge tube having cold cathodes and mesh anodes is modified as follows: in order to increase the active surfaces of the electrodes and improve the ionization conditions in the discharge gaps, the discharge tube is made with two mesh anodes and three flat cathodes, one of which is placed in the symmetry plane between the anodes and, together with the latter, forms two discharge gaps in the over-all magnetic field. (Author)

Romanov, V. V.
THE POSSIBILITY OF REDUCING THE GROWTH OF ZINC DENDRITES IN NICKEL-ZINC AND SILVER-ZINC ACCUMULATORS. Feb 62 [12]p. (4 refs. figs. omitted) 21 refs. [DSIR] NLL M. 3637.
Order from OTS or SLA $1.60 62-25320

Trans. of Zhur[nal] Prikl[adnoi] Khim[ii] (USSR) 1961, v. 34, no. 12, p. 2692-2699.

DESCRIPTORS: *Storage batteries, *Hydraulic accumulators, *Alkaline cells, Zinc, Crystals, Metallic crystals, Growth, Reduction, Electrolysis, Electric currents, Electroplating, Silver.

In an investigation of the effect of different current forms on the electrolysis of zincate solutions it was shown that no zinc dendrites are formed during electrolysis with asymmetrical alternating and pulsating single-half-cycle currents under appropriate conditions. It is shown that the charging of nickel-zinc accumulators should only be performed with a pulsating single-half-cycle current at a frequency of 50 c./s. The possibility of employing the electrolysis of zincate solutions with pulsating currents in the electroplating and electrometallurgy of zinc is noted. (Author)

Salka, Oskars.
CALCULATION OF IMPULSE-CIRCUITS. [1962] 11p. (figs. formulae tables refs. omitted).
Available on loan from SLA 62-20346

Trans. of Archiv für Elektrotechnik (Germany) 1953, v. 41 [no. 1] p. 18-27.

DESCRIPTORS: *Circuits, *Wiring diagrams, Mathematical analysis, Voltage.

There is shown a way for the joint calculation of a periodical impulse waves which are produced by a CLR circuit or a combined CR circuit (without L). The clarity there is achieved by the introduction of a new coefficient of the aperiodicity. For those analytical functions whose numerical evaluation can only be carried out in a time-consuming manner or not directly, there have been constructed auxiliary curves. Finally, the calculating procedure is illustrated with the help of some practical examples. (Author)

Starke, L.
THE MEASUREMENT OF THE SWITCHING CHARACTERISTIC OF SEMICONDUCTORS. [1962] 8p.
Order from SLA $1.10 62-16169

Trans. of Elektronik (West Germany) 1962 [v. 11] no. 2, p. 45-46.

DESCRIPTORS: *Computers, Switching circuits, Measurement, *Semiconductors diodes, *Transistors, *Rectifiers, Silicon.

Taev, I. S. and Nesterov, G. G.
ALTERNATING CURRENT ARC SUPPRESSION PROCESSES IN A DE-ION GRID (Protessy Gasheniya Dugi Peremennogo Toka v Dugogasitel'noi Reshetke). July 62 [13]p. 2 refs. RTS 2050.
Order from OTS or SLA $1.60 62-32472

Trans. of Vestnik Elektropromyshlennosti (USSR) 1961, v. 32, no. 6, p. 55-60.

DESCRIPTORS: *Alternating current, *Suppressors, *Electric arcs, Control, Cooling, Electric insulation, Insulating materials, Voltage.

The present paper sets out certain empirical relationships which have been established as the result of an investigation of the processes occurring in the suppression of an alternating current arc in the de-ion grid of an arc control device in the current range of 100-2400A. The investigation was undertaken to determine the effect of various factors on the recovery strength of the arc gap after a current zero. The experimental data givessome idea of the relative effect of the various factors on the recovery strength of the arc gap in a de-ion grid. They bear out the contention that processes of breakdown in electric strength in the grid are governed by the cooling of the arc column and by the grid plates.

Ullmann, J.
ELECTRONIC COUNTERS ASSURE CONSTANT ACCURACY IN ROLL ADJUSTMENT. Nov 62.
Order from BISI $3 BISI-2978

Trans. of Bänder, Bleche, Rohre (West Germany) 1962 [no. 1] p. 17-20.

DESCRIPTORS: *Pulse counters, Electronic equipment, Counting methods, *Rolling mills, Quality control, Electronic drives, *Electronic counters.

Vol'dek, A. I.
ELECTROMAGNETIC PUMPS FOR LIQUID METALS. [1962] [10]p. 6 refs. C. E. Trans. 2462; [DSIR] NLL M. 6321.
Order from OTS or SLA $1.10 62-25953

Trans. of Elektrichestvo (USSR) 1960, no. 5, p. 22-27. A trans. is available in French from OTS or SLA $2.60 as 62-13810, CEA-tr-R1389, 11 Sep 61 [22]p.

DESCRIPTORS: *Liquid metals pumps, *Electromagnetic pumps, Particles, Metals, Magnetic fields, Electric currents, Thermal conductivity, *Electrochemistry.

Yurkevich, A. P. and Vovchenko, N. Ya.
DESIGN OF ELECTRICAL MEASUREMENT DEVICES AND SYSTEMS WITH FORCE COMPENSATION. 17 Sep 62 [165]p. 20 refs. FTD-TT-62-835.
Order from OTS or SLA $12.00 62-33535

Unedited rough draft trans. of mono. Raschet Elektricheskikh Izmeritel'nykh Ustroistv i Sistem s Silovoi Kompensatsiei, Moscow, 1961, 129p.

DESCRIPTORS: *Electrical equipment, Instrumentation, Design, Galvanometers, Circuits, Flight instruments, Statics, Dynamics, Torque, Measurement, Potentiometers, Transients, Structures, Mathematical analysis, Control systems.

Contents:
Calculation of basic static and dynamic characteristics of instruments from their structural diagrams
Electric measuring devices of the galvanometric type and their circuitry
Electrical torque and force pickups for force-compensated measurement systems.

Zharov, A.
NORMS FOR MAXIMUM ADMISSIBLE INDUSTRIAL RADIO INTERFERENCE. 10 Sep 62 [64]p. FTD-TT-62-572; AD-286 596.
Order from OTS or SLA $6.60 62-33531

Trans. of mono. Normy Predel'no Dopustimykh Industrial'nykh Radiopomekh, 5 ed., Moscow, 1961, 54p.

DESCRIPTORS: *Radio interference, Measurement, Standards, Industrial equipment, Electrical equipment, Noise (Radio), Suppressors, Safety.

Zin'kovskii, A. I.
RADIO ENGINEERING AND SPACE FLIGHTS. 28 June 62 [10]p. FTD-TT-62-583; AD-283 898.
Order from OTS or SLA $1.10 62-32693

Unedited rough draft trans. of Massovaya Radio Biblioteka (USSR) 1960, v. 388, p. 38-45.

DESCRIPTORS: *Space flight, *Space communication systems, *Radar, Space environmental conditions, Detection, *Radio navigation, Direction finding, Position finding, Satellite vehicles, Meteors.

Zybtsev, L. F.
A FREQUENCY DISCRIMINATOR. 9 Apr 62 [3]p. MCL-1314.
Order from OTS or SLA $1.10 62-24036

Unedited rough draft trans. of Soviet patent 130931, 16 Mar 59.

DESCRIPTORS: *Frequency, *Discriminators, Design, Frequency modulation, Amplitude modulation, Modulation, Voltage.

This frequency discriminator with auxiliary frequency modulation of the voltage of a trimmed or standard generator has the following special feature: in order to exclude tuned circuits, the voltages of the trimmed and standard generators are jointly detected and the forming FM difference-frequency signal is transformed, using a frequency-dependent circuit, into a signal with amplitude modulation; they are then again detected and the alternating voltage with the frequency of auxiliary modulation that forms, as a result, at the output of the second detector is used as an error signal. (Author)

USSR INDUSTRIAL DEVELOPMENT: SOVIET REFRIGERATION MACHINERY NO. 9. 13 Nov 62 [36]p. JPRS: 16155.
Order from OTS or SLA $3.60 63-13066

Trans. of Kholodil'naya Tekhnika (USSR) 1962 [v. 39] no. 4, p. 12-16 (excerpts) 52-54 (excerpts) 73-76 (excerpts); Krokodil (USSR) 1962 [v. 40] no. 16, p. 7; and from Pravda, Leningrad (USSR) 1962, 11 Aug, p. 2; Vechernyaya Moskva (USSR) 1962, 31 Aug, p. 1; Izvestiya (USSR) 1962, 8 Aug, p. 4; Bakinskii Rabochii (USSR) 1962, 26 Aug, p. 3.

DESCRIPTORS: *Industrial production, *Refrigeration systems, *Operating rooms, *Air conditioning equipment, Standards, Machinery, Industrial plants, *Test facilities, *Refrigerants, Turbines.

Contents:
Self-contained air conditioners for operating rooms, by N. Ya. Barulin and R. N. Nazyrov
New standardization of commercial refrigerator equipment, by B. A. Ber
Coordinating Conference on Refrigeration Machinery Building (no. 2) Moscow, 8-12 May 62, by V. G. Kochubei
The mystery of the defective goods production at the Orlov instrument plant (the secret of production) by I. Kostyukov
Refrigerators produced by the Leningrad plant no. 2
New buildings for the development and testing of refrigeration equipment
The use of air-turbo refrigerators: cold is made by a turbine, by S. Tumanskii and M. Dubinskii
Baku electric refrigerator plant: a miraculous cure of metal, by V. Valerov.

USSR INDUSTRIAL DEVELOPMENT: SOVIET REFRIGERATION MACHINERY NO. 10. 26 Nov 62 [8]p. JPRS: 16361.
Order from OTS or SLA $1.10 63-13296

Trans. of Kholodil'naya Tekhnika (USSR) 1962 [v. 39] no. 2, p. 54 and from Trud, Moscow (USSR) 1962, 11 Sep, p. 1.

DESCRIPTORS: Industry, *Industrial production, Automation, *Refrigeration systems, *Air conditioning equipment, Production, Conferences, Engineering personnel, Maintenance personnel, Personnel.

Contents:
Automation: in the shop, by L. Pryakhin and others
Conference and Seminar of the Chief Engineers Repair and Assembly Combines of the Restorgmontazh Trust.

Borodina, R. M.
SOLUTION OF THE EQUATIONS OF THE MOTION OF AN EQUILIBRATED GYROSCOPE BY THE METHOD OF NEUTRALIZATION. 7 Aug 62 [9]p. 6 refs. FTD-TT-62-609; AD-284 117.
Order from OTS or SLA $1.10 62-32938

Unedited rough draft trans. of Ukrainskii Matematicheskii Zhurnal (USSR) 1961, v. 13, no. 3, p. 97-100.

DESCRIPTORS: *Gyroscopes, Mechanics, *Equations of motion, Solution, Inertia, *Neutralization.

The differential equations of the motion of an equilibrated gyroscope are solved by the method of neutralization of Krylov and Bogolyubov. From the solution it is clear that in the case of a free gyroscope under the action of an impulse applied to the internal ring, the gyroscope will shift over an angle of precession with a speed proportional to the square of the amplitude of the nutation oscillations if the frames of the Cardan ring are not perpendicular.

Ibragimov, M. Kh., Nomofilov, E. V., and Subbotin, V. I.
HEAT TRANSFER AND HYDRAULIC RESISTANCE DURING HELICAL FLOW OF A FLUID IN A TUBE. 9 May 62 [11]p. 4 refs. FTD-TT-62-315.
Order from OTS or SLA $1.60 62-25736

Unedited rough draft trans. of Teploenergetika (USSR) 1961 [v. 8] no. 7, p. 57-60.

DESCRIPTORS: *Heat transfer, *Hydraulic research, *Fluid flow, Water, Liquid metals, Turbulence, Turbulent flow, Steel tubing, Thermal conductivity.

A study is made of the influence of additional turbulence that arises with helical flow of a fluid in a tube. The experiments were conducted with water and liquid metal having different thermal conductivity. The hydraulic resistance of the water flow was also investigated. The results obtained indicate that the influence of twisted strips on heat transfer depends on the thermal conductivity of the liquid. It can be assumed that with helical flow of a liquid there is a change in the laminar sublayer. Therefore, for low-heat-conducting liquids, for which the laminar sublayer noticeably affects the heat transfer, there is a noticeable increase in heat transfer in a tube with twisted strips. The twisted strips had no effect on liquid metals, in which the laminar sublayer plays an insignificant role. (Extract)

Kagan, D. Ya. and Zhuravlev, L. S.
AN INVESTIGATION INTO THE ACTION OF CONTAMINATED LOW-TEMPERATURE STEAM ON 35KhNM AND 1Kh18N9T STEEL IN THE STRESSED STATE. [1962] [7]p. C.E. Trans. 2375; [DSIR] NLL M.6323.
Order from OTS or SLA $1.10 62-25955

Trans. of Teploenergetika (USSR) 1961, v. 8, no. 3, p. 46-48.

DESCRIPTORS: Steam turbines, Disks, *Steam, Impurities, *Steel, Stresses, Metals, Fracture (Mechanics), Tests, Pressure gages, Temperature, *Hydroxides, *Sodium compounds, Contamination.

The results are given of test-bed and industrial investigations into the effect of steam impurities on the destruction of the metal of steam turbine discs in the stressed state. (Author)

Kovalev, A. P. and Ippolitov, A. S.
INVESTIGATION OF A TWO CHAMBER CYCLONE FURNACE WITH INTERSECTING JETS. [1962] [10]p. 1 ref. C.E. Trans. 2295; [DSIR] NLL M.6014.
Order from OTS or SLA $1.10 62-25925

Trans. of Energomashinostroenie (USSR) 1960, v. 6, no. 11, p. 16-19.

DESCRIPTORS: *Cyclone furnaces, Design, Boilers, Combustion chambers, Operation, Gas burners, Fuels, Ignition, *Jet mixing flow, *Particle trajectories.

Tsetlin, V. M. and Peisakhov, I. L.
A NOMOGRAPH FOR THE DETERMINATION OF THE SPEED OF MOVEMENT OF DUST PARTICLES IN THE STOKES MEDIUM AT VARIOUS AIR TEMPERATURES (Nomogramma dlya Opredeleniya Skorosti Vitaniya Chastits Pyli v Stoksovoi Oblasti prt Razlichnoi Temperature Vozdukha). [1962] [7]p. (foreign text included) 5 refs.
Order from OTS or SLA $1.10 62-14593

Trans. of Tsvetnye Metally (USSR) 1960 [v. 33] no. 11, p. 42-44.

DESCRIPTORS: *Smokes, Particles, Motion, Velocity, Gas flow, Furnaces, Air conditioning equipment, *Nomographs, Dusts.

Ordnance, Missiles, and Satellite Vehicles

THE FLIGHT OF THE SPACE-SHIP VOSTOK, tr. by J. W. T. Palmer. 20 Apr 61 [9]p. RAE Library Press Trans. 13; [DSIR] NLL M. 3347.
Order from OTS or SLA $1.10 62-25575

Trans. of extracts from Pravda [Moscow] (USSR) 1961, 13-14 Apr.

DESCRIPTORS: *Space flight, *Spaceships, Satellite vehicles, Astronauts.

THE FLIGHT OF THE SPACE-SHIP VOSTOK 2, tr. by J. W. T. Palmer. 11 Aug 61 [9]p. RAE Library Press Trans. no. 14; [DSIR] NLL M.3441.
Order from OTS or SLA $1.10 62-25574

Trans. of extracts from Pravda [Moscow] (USSR) 1961, 7-8 Aug, and 7 Aug special ed.

DESCRIPTORS: *Spaceships, *Space flight, Satellite vehicles, Astronauts.

ON SPACE AND ON SELF: A MEETING OF THE COSMONAUTS WITH JOURNALISTS. 27 June 62, 2p. AID rept. 62-88; NASA N62-14336.
Order from OTS or SLA $1.10 62-32108

Abstract trans. from Pravda [Moscow] (USSR) 1962, 10 June, p. 3.

DESCRIPTORS: *Astronauts, Space flight, *Spaceships, *Rocket motors, Air conditioning equipment.

PROBLEM OF DESTROYING HOSTILE ROCKETS IN FLIGHT SOLVED IN THE USSR. 23 Apr 62 [3]p. FTD-TT-62-425.
Order from OTS or SLA $1.10 62-25842

Unedited rough draft trans. of an unidentified TASS rept., 20 Jan [62] 1p.

DESCRIPTORS: *Rockets, *Guided missiles, *Nuclear weapons, Nuclear warheads, Interception, Countermeasures, *Antiaircraft defense systems,

PROBLEMS IN THE DEVELOPMENT OF ROCKET ENGINES WITH POWERFUL THRUST. 23 Apr 62[3]p. FTD-TT-62-548.
Order from OTS or SLA $1.10 62-25751

Unedited rough draft trans. of and unidentified TASS rept., 16 Feb 62.

DESCRIPTORS: *Rocket motors, *Thrust, Liquid jets, Satellite vehicles, Velocity, Spaceships.

Bazhenov, G. M.
THE DETERMINATION OF THE ORBIT OF AN ARTIFICIAL EARTH SATELLITE FROM THREE OBSERVATIONS. 22 Aug 62 [15]p. 4 refs. FTD-TT-62-590; AD-286 627.
Order from OTS or SLA $1.60 62-33650

Trans. of [Akademiya Nauk SSSR]. Institut Teoreticheskoi Astronomii. Byulleten', 1960, v. 7, no. 10(93) p. 757-765.

DESCRIPTORS: Satellite vehicles, *Orbital flight paths, *Satellite vehicle trajectories, Determination.

A method is given for determining the initial orbit of an artificial earth satellite from three observations separated by sufficiently long intervals of time. (Author)

Duboshin, G. N.
THE ROTARY MOTION OF ARTIFICIAL CELESTIAL BODIES. 4 Sep 62 [19]p. 5 refs. FTD-TT-62-711; AD-286 568.
Order from OTS or SLA $1.60 62-33635

Unedited rough draft trans. of [Akademiya Nauk SSSR]. Institut Teoreticheskoi Astronomii. Byulleten', 1960, v. 7, no. 7(90) p. 511-520.

DESCRIPTORS: *Satellite vehicles, *Artificial planetoids, Rotation, Motion, *Orbital flight paths, Stability.

This article deals with the problem of motion of an artificial celestial body revolving about a central planet and having a rotatory motion about its own center of inertia. With certain precisely stipulated assumptions, this problem yields simple partial solutions which may be of practical interest. In these partial solutions, which we call "regular motions," the center of inertia of the body moves about the planet in a circular Keplerian orbit and the body itself maintains a constant orientation with respect to this orbit. Further consideration is given to the question of stability of the regular motion considered, with respect to the Eulerian angles of the body and their first derivative with respect to time. Two types of artificial bodies are considered, namely the "elongated" body which in most cases is a homogeneous material section, and the "compressed" body which in most cases is a homogeneous material flat disk. It is established that in most cases the elongated and the compressed bodies behave in the opposite manner in the sense of stability of regular motion, that is where a rod is stable a disk is unstable and vice versa. Consideration is given to the question of the influence of the compression of the central body on the regular motion of the celectial body which is rotating about it. (Author)

Emme, A.
COSMIC EXPLORERS. 8 May 62 [5]p. FTD-TT-62-602.
Order from OTS or SLA $1.10 62-25854

Unedited rough draft trans. from Sovetskaya Rossiya (USSR) 1960, 20 Oct.

DESCRIPTORS: *Space biology, *Space environmental conditions, *Cosmic rays, Radiation effects, Laboratory animals, Mice, Insects, Drosophila, Nucleic acids, Space medicine, Satellite vehicles, Space flight, Biology.

Gross, Werner Hjalmar.
CRITICAL STUDY ON THE PREDETERMINATION OF THE LIFE OF POWDERS AND EXPLOSIVES. May 61 [29]p. Technical notes FRL-TN-72; AD-256 010.
Order from OTS or SLA $2.60 62-25778

Trans. of Explosivstoffe (West Germany) 1959, v. 7 [no. 4] p. 71-76 and [no. 5] 91-95.

DESCRIPTORS: *Propellants, Nitrocellulose, Powders, *Explosives, Cellulose nitrates, Storage, Life expectancy, Test methods, Determination, Mathematical analysis, Theory, Nitroglycerin.

Up to a certain point it is possible to determine the residual life of a powder. In the case of explosives, it is also possible to employ one of the methods described, provided, that catalytic influences are excluded. If a standard explosive and a standard powder with a definitely known lower life limit is used, the area method would appear to have great advantages, since it is based on a dynamic test, like the hydrolytic Muraour test. The method of experimental coefficients is considered more advantageous than the method of fixed coefficients. The residual stabilizer test seems to be relatively reliable only when the law of consumption of stabilizer, probably exponential rather than linear, is fairly accurately known. As far as Carneiro's formula is concerned, it is useful on account of its practical convenience and almost always leads to satisfactory results. Whenever possible, any attempt at predetermination should be based on thermal tests at low temperatures. (Author)

Mar'yanin, L.
SECOND LAUNCHING INTO THE COSMOS. 24 Sep 62, 2p. AID rept. 62-152. AD-286 248.
Order from OTS or SLA $1.10 62-33576

Abstract trans. from Pravda [Moscow] (USSR) 1962, 4 Aug, p. 4 and 5 Aug, p. 6.

DESCRIPTORS: *Spaceships, Rockets, Launching.

Mikoyan, A.
FROM AN AIRPLANE TO A SPACESHIP. 5 Sep 62 [10]p. FTD-TT-62-1115. AD-286 608.
Order from OTS or SLA $1.10 62-33634

Unedited rough draft trans. from Krasnaya Zvezda (USSR) 1962, no. 7(11612) 9 Jan, p. 2-3.

DESCRIPTORS: *Airplanes, Air speed, Propulsion, Supersonics, Supersonic flight, Astronautics, Spaceships, *Satellite vehicles, Space flight, Design.

Shcherbakov, V.
SAFETY OF COSMIC ROUTES. 29 June 62 [8]p. FTD-TT-62-829; AD-283 899.
Order from OTS or SLA $1.10 62-32999

Unedited rough draft trans. of Tekhnika-Molodezhi (USSR) 1961 [v. 29] no. 12, p. 12-13.

DESCRIPTORS: *Space flight, Accidents, *Meteorites, Meteors, Radar, Electromagnetic waves.

Stepanov, B.
RETURN TO EARTH. 29 June 62 [3]p. FTD-TT-62-853; AD-285 834.
Order from OTS or SLA $1.10 62-33000

Unedited rough draft trans. from Krasnaya Zvezda (USSR) 1960 [no. 118(11112)] 17 May, p. 4.

DESCRIPTORS: *Space flight, *Spaceships, *Deceleration, Aerodynamic heating, *Re-entry aerodynamics, Re-entry vehicles.

Thomanek, Rudolf.
THE DEVELOPMENT OF THE LINED HOLLOW CHARGE, tr. by Alex Palinkas. Mar 61 [10]p. Technical notes no. FRL-TN-27; AD-255 668.
Order from OTS or SLA $1.10 62-32333

Trans. of Explosivstoffe (West Germany) 1960, v. 8, no. 8 [p. 177-179].

DESCRIPTORS: *Shaped charges, Cratering, *Cavity liners, Metal plates, Penetration, Germany, Antitank ammunition, Projectiles, Armor piercing ammunition, Explosives, Design.

The discovery of the lining effect and the development of the lined hollow (shaped) charge are described. While performing experiments designed to increase the kinetic energy of gas clouds entering the cavity of a hollowed explosive charge, a glass cavity liner was used to facilitate evacuation of the cavity. Deeper penetrations of a Silumin test block were obtained with the glass liner. This effect was initially attributed to the vacuum, but further testing indicated that the vacuum had no measurable influence and that the glass liner was responsible. A secret patent (no. 188/43, dated 9 December 1939) was obtained for an explosive projectile, in whose explosive charge a cavity was formed to increase the explosive effectiveness and which was characterized by a lining of the cavity. (ASTIA abstract)

Titov, G. S.
TOWARD NEW SUCCESSES IN STUDY OF OUTER SPACE. 6 Sep 62 [21]p. FTD-TT-62-1189.
Order from OTS or SLA $2.60 62-33630

Unedited rough draft trans. of Akademiya Nauk SSSR. Vestnik, 1962, v. 32, no. 7, p. 10-18.

DESCRIPTORS: *Space flight, *Space ships, Satellite vehicles, *Astronauts.

A translation of a speech delivered at the International Symposium on Space Research, 30 Apr - 9 May 1962 in Washington.

Varvarov, N.
ORIENTATION AND STABILIZATION OF A COSMIC SHIP IN FLIGHT. 28 Feb 62 [6]p. FTD-TT-62-268.
Order from OTS or SLA $1.10 62-23667

Unedited rough draft trans. from Ekonomicheskaya Gazeta (USSR) 1961, 2 Apr.

DESCRIPTORS: *Spaceships, *Space flight, *Stabilization, Satellite vehicles, Guidance, Relativity theory, Orbital flight paths, Re-entry aerodynamics, *Celestial mechanics, Closed cycle ecological systems.

FOOD, HANDLING, AND PACKAGING EQUIPMENT

Food

Skurikhin, I. M.
ON THE CHEMICAL PROCESSES WHICH TAKE PLACE AS A RESULT OF THE AGEING OF BRANDY ALCOHOLS IN OAK BARRELS (O Khimicheskikh Protsessakh, Proiskhodyashchikh pri Vyderzhke Konyachnykh Spirtov v Dubovykh Bochkakh). Sep 62 [15]p. 15 refs. RTS 2146.
Order from OTS or SLA $1.60 62-32964

Trans. of Vinodelie i Vinogradarstvo SSSR, 1960, v. 20, no. 2, p. 8-15.

DESCRIPTORS: Beverages, *Liquors, *Alcohols, Aging, Containers, *Wood, Cells (Biology), *Lignin, *Tannic acids, Chemical reactions.

A comparison of the results of the chemical investigations of brandy alcohols and barrel staves shows that the surface layers of the oak stave which are in contact with the alcohol lose fairly quickly on ageing their easily extractable lignin and tannin. The extraction of the lignin and tannins on prolonged ageing therefore takes place mainly from the deeper layers of the stave which is facilitated by the breakdown of the structure of the cell walls. (Author)

Ueda, Kiyomoto.
CONTINUOUS FERMENTATION OF MOLASSES WITH A COMBINED SYSTEM OF AGITATED VESSELS AND FLOW PIPES. Pt. 7 of Studies in Continuous Fermentation. [1962] 9p. 4 refs.
Order from SLA $1.10 62-16046

Trans. of [Nihon Nogei-Kagakkai Shi (Japan) 1958, v. 32, p. 26-29].

DESCRIPTORS: Food, *Carbohydrates, Fermentation, Yeasts, Alcohols, Containers, Pipes.

An improved set of equipment for the agitated-vessel process was devised, to be used for continuous alcoholic fermentation. This apparatus is a compromise between the agitated-vessel and the pipe process. This improved apparatus is 1.8 times more efficient than the re-use and the two-vessel methods; this figure agrees with the theoretical value. (Author)

MACHINERY, FABRICATION, AND ACCESSORY EQUIPMENT

ABSTRACTS PERTAINING TO COMMUNIST CHINA IN SOVIET ABSTRACTS JOURNALS NO. 43 (MACHINE BUILDING SERIES) AND (MINING SERIES). 30 Nov 62 [37]p. JPRS: 16434.
Order from OTS or SLA $3.60 63-13337

Trans. of selected abstracts from Referativnyi Zhurnal. Mashinostroenie (USSR) 1961, nos. 17, 20-21; 1962, nos. 10-11, 14, 16; Referativnyi Zhurnal. Gornoe Delo (USSR) 1962, no. 5, 7-8.

DESCRIPTORS: Abstracts, *Machines, Construction, *Mining engineering, Engineering, Casting, Helicopters, Cutting tools, Petroleum, Processing, China.

Contents:
Casting technology and equipment
(Machinery, Fabrications and Accessory Equipment,
Technology of machine construction
Airplanes; helicopters; rocketry
Metal-cutting machines; automation lines; and their operation
Electric spark apparatus
Automobiles; tractors; trailers
Tractors and agricultural machines and tools
Mining, construction, and road machinery and equipment
Technology of machine construction
Machine construction materials
Construction and organization of mining enterprises
Technology of basic processes in mining hard mineral deposits
Working of petroleum and gas deposits

ARRANGEMENT FOR SINGLE-LOG BARKING MACHINES, tr. by E. B. F. 24 Aug 62, 5p. (figs. omitted)
Order from OTS or SLA $1.10 62-32922

Trans. of Norwegian patent 93,343, cl. 38i-1, internat. cl. B27l, by A. Ahlström Osakeyhtiö Warkaus Bruk (Finland) appl. 17 Aug 57, granted 20 Dec 58, pub. 16 Feb 59.

DESCRIPTORS: *Machines, Trees, Wood, Plants, *Cutting tools.

The arrangement is characterized in that in front of the main barking knives, there is arranged in the log path of movement one or more transverse, freely rotating cutter knives, at an angle to the feed direction, so that the forward movement of the log rotates the knife or
(Machinery, Fabrications and Accessory Equipment,
knives about the log, and that the knives are spring biased in such a manner that they strive to adjust themselves and remain in the vicinity of the center of the feed path, the bark being therefore cut in the shape of a spiral or of spirals before the log reaches the main knives for barking.

USSR INDUSTRIAL DEVELOPMENT: SOVIET CONSTRUCTION MACHINERY NO. 21. 26 Nov 62 [30]p. JPRS: 16328.
Order from OTS or SLA $2.60 63-13347

Trans. of Mekhanizatsiya Stroitel'stva (USSR) 1962 [v. 19] no. 10, p. 1-2; Tekhnika v Sel'skom Khozyaistve (USSR) 1962 [v. 22] no. 9, p. 36-39; Stroitel'nye i Dorozhnye Mashiny (USSR) 1962 [v. 7] no. 8, p. 1-3; no. 9, p. 1-4; Avtomobil'nye Dorogi (USSR) [1962, v. 25] no. 8, p. 17 and 18 (excerpt).

DESCRIPTORS: *Machines, *Construction, *Industrial production, Hoists, Road building equipment, Excavators, Earth moving equipment, Bulldozers, Trailers, Transportation, Hydraulic systems, Graders, Soils, Compressors, Foundations (Structures), Construction materials industry, Soil tampers, Locomotive cranes, (Machinery, Fabrications and Accessory Equipment. Tractors, Power drives, Standards, Cargo vehicles, Electric motors.

Contents:
For future mechanization and industrialization in construction work, by P. Zimin and A. Shchepet'ev
Excavating machinery, by A. Buzdin and F. Filippov
Earth compressing machines
The D-471 tamping machine, by V. T. Mikhailov
New soil compressing machines
The standardized railroad crane, by N. V. Vydrin and others.

USSR INDUSTRIAL DEVELOPMENT: SOVIET CONSTRUCTION MACHINERY NO. 22. 30 Nov 62 [30]p. JPRS: 16432.
Order from OTS or SLA $2.60 63-13336

Trans. (some in part) of Stroitel'nye i Dorozhnye Mashiny (USSR) 1962, v. 7, no. 10, p. 1, 3-6, 11, 15-16, 28-29 33.

DESCRIPTORS: *Industrial production, Machines, *Construction, *Hoists, *Road building equipment, Loaders, Trailers, Floats, Cargo vehicles, Hydraulic pressure pumps, Tractors, Soil tampers, Railroad tracks, Brick, Clays, Construction materials industry, Pipes, Transportation.

(Machinery, Fabrications and Accessory Equipment,
Contents:
The new structure assembly crane DEK-50, by L. G. Blokhin and A. V. Gorozhankin
Fundamental trends in modernization of construction and road machinery, by A. V. Rumyzntsev
The D-451 semi-rotatable clamshell loader, by R. Sultanov
New heavy duty trailer float, by L. N. Akhmet'ev and K. E. Nikul'shin
New crane transporting equipment, by I. M. Manyuta and B. F. Kulik
Continuous production pump for hydraulic units of high powered tractors, by A. F. Arkhangel'skii
The Sh-PM-02 tie tamping machine, by Z. S. V. Barshavskii and V. G. Okhapkin
The SM-897 adobe block making machine, by K. Bernatovich and others
New pipe transporting machines.

USSR INDUSTRIAL DEVELOPMENT: SOVIET METAL WORKING EQUIPMENT NO. 37. 23 Nov 62 [16]p. JPRS: 16305.
Order from OTS or SLA $1.60 63-13266

Trans. of Narodnoe Khozyaistvo Uzbekistana (USSR) 1962 [v. 4] no. 8, p. 90-92; Finansy SSSR, 1962 [v. 23] no. 8, p. 69-71; and from Ekonomicheskaya Gazeta (USSR) 1962, no. 34[55] p. 16; no. 37[58] p. 36.

DESCRIPTORS: *Industrial production, Machine tool industry, *Cutting tools, Industrial equipment, Industrial research, Abrasives, Grinding.

Contents:
Ramenskoe plant installs new machine tool for air and arc cutting
The maintenance of equipment should be centralized, by K. Kuznetsova and A. Rybkina
(Machinery, Fabrications and Accessory Equipment,
The work of the State Design and Technological Bureau, by I. Alimov
Volzhskii branch of the All-Union Scientific Research Institute of Abrasives and Grinding, by N. Goryachev.

USSR INDUSTRIAL DEVELOPMENT: SOVIET METAL-WORKING EQUIPMENT NO. 38. 26 Nov 62 [18]p. JPRS: 16347.
Order from OTS or SLA $1.60 63-13291

Partial trans. of Byulleten' Tekhniko-Ekonomicheskoi Informatsii (USSR) 1962, no. 9, p. 32-34, 38-40; Mekhanizatsiya i Avtomatizatsiya Proizvodstva (USSR) 1962 [v. 16] no. 9, p. 6-11.

DESCRIPTORS: *Industrial production, *Metal forming presses, *Rolling mills, Gears, Automatic, Machine tools, Cutting tools, *Forge presses, Shafts, Forging, Production, *Grinders, Machines, Automation.

Contents:
Rolling mill with enclosed rollers D-250 model S1234, by M. A. Satsevich
(Machinery, Fabrications and Accessory Equipment,
Automatic gear chamfering machine model ST-1480-A, by S. M. Zonnenberg and V. T. Storchan
Automatic production line for forging stepped shaft blanks, by I. G. Kondrat'ev
Automation of grinding machines, by M. L. Lesnitskii.

USSR INDUSTRIAL DEVELOPMENT: SOVIET METAL-WORKING EQUIPMENT NO. 39. 27 Nov 62 [21]p. JPRS: 16377.
Order from OTS or SLA $1.60 63-13320

Partial trans. of Byulleten' Tekhniko-Ekonomicheskoi Informatsii (USSR) 1962, no. 8, p. 19-22; Partiinaya Zhizn' (USSR) 1962, no. 14, p. 15-21; Kuznechno-Shtampovochnoe Proizvodstvo (USSR) 1962 [v. 4] no. 9, p. 22 and 25; and from Sovetskaya Belorussiya (USSR) 1962, 7 Aug; Pravda, Moscow (USSR) 1962, 24 Aug.

DESCRIPTORS: *Industrial production, Metals, *Machine tools, Machining, Manufacturing methods, Industrial equipment, Scheduling, Standardization, Bearings, Drive shafts, Automotive industry, Foundries, *Machines, *Construction, *Hydraulic presses, Rolling mills, Automation, *Metal forming presses, (Machinery, Fabrications and Accessory Equipment, Dies, Forge presses. (over)

Contents:
Broader use of USP fixtures at Belorussian plants, by V. Chulitskin
The Moscow Stankoagregat plant, by V. Kretov and others
Semiautomatic core blowing machine model 28B7 combined with a roll-over molding machine model 28P8, by A. G. Nusinov
Horizontal hydraulic press-fitting presses models P983 and P6738
Sverdlovsk Uralmash plant, by P. Voronov
Hydraulic 500-ton press used for assembly and press-fitting operations, by P. S. Meleshkevich and others
Sixteen hundred-ton hot die-forging press, by V. I. Degtyarev and P. A. Petrov.

USSR INDUSTRIAL DEVELOPMENT: SOVIET METAL-WORKING EQUIPMENT NO. 40. 3 Dec 62 [22]p. JPRS: 16481.
Order from OTS or SLA $2.60 63-13269

Trans. from Leninskoe Znamya (USSR) 1962, 20 Aug; Trud, Moscow (USSR) 1962, 5 Sep; Kommunist, Moscow (USSR) 1962, no. 14, p. 29-30; Kommunist, Erevan (USSR) 1962, 16 Sep; Zarya Vostoka (USSR) 1962, 15 Sep, p. 2; Pravda, Moscow (USSR) 1962, 11 Sep, p. 2.

DESCRIPTORS: *Industrial production, *Machine tool industry, Automation, Conveyors, *Milling machines, *Drilling machines, Machine tools, Gears, Standardization, Industrial plants, Grinders, Economics.

Contents:
Rotor lines are few, but plans for them exist, by L. Koshkin
(Machinery, Fabrications and Accessory Equipment, (over)
A giant machine-tool, by G. S. Sharkov
Machine-tool standardization and gear standardization
New machine-tools are born here, Transcaucasus branch of ENIMS, by T. Garyan
Information on Tbilisi grinding machines plant, by M. Lezhava
Three years between the plan and the machine-tool, by A. Edel'son.

Busek, Z.
PRE-HEATING THE CHARGE OF ELECTRIC ARC-FURNACES. Nov 62.
Order from BISI £2 10s BISI-2955

Trans. of Vysoka Skola Banska. Sbornik Vedeckych Praci (Czechoslovakia) 1961, v. 7, no. 7, p. 731-733.

DESCRIPTORS: *Electric furnaces, Electric arcs, Heating.

Gottwein, K.
TESTING OF THE SUITABILITY OF GRINDING WHEELS AND THE SUSCEPTIBILITY OF METALLIC MATERIALS TO GRINDING. 12 July 49, 3p. (figs. omitted) 3 refs.
Order from SLA $1.10 62-18342

Trans. of V[erein] D[eutscher] I[ngenieure. Zeitschrift] (Germany) 1941, v. 85, no. 2, p. 43-44.

DESCRIPTORS: *Grinding wheels, *Metals, Machining, Temperature, Steel, Cast iron.

Ivanov, V. M.
INVESTIGATION INTO THE DYNAMIC CHARACTERISTICS OF THE HYDRAULIC TORQUE CONVERTER UNDER UNSTEADY LOAD CONDITIONS OPERATING IN CONJUNCTION WITH A TRACTOR DIESEL ENGINE. [1962] 11p.
Available on loan from SLA $1.60 62-18895

Trans. of [Moskovskaya Sel'skokhozyaistvennaya Akademiya]. Doklady, 1958, v. 35, p. 168-175.

DESCRIPTORS: *Hydraulic systems, *Automatic transmissions, Torque, Dynamics, Load distribution, *Tractor engines, Diesel engines, Operation.

Kubista, Z. and Buzek, Z.
A COMPARISON OF ACID AND BASIC ARC-FURNACES. Nov 62.
Order from BISI £4 BISI-2959

Trans. of Vysoka Skola Banska. Sbornik Vedeckych Praci (Czechoslovakia) 1961, v. 7, no. 7, p. 799-803.

DESCRIPTORS: *Electric furnaces, Electric arcs, Acids.

Larkin, A. I.
MACHINE FOR MACHINING THE PALMS OF BLADES E. G. OF A COMPRESSOR. 7 Aug 62 [4]p. FTD-TT-62-841.
Order from OTS or SLA $1.10 62-33393

Unedited rough draft trans. of [Russian] patent 141 381 (691087/25) 29 Dec 60, p. 1-2.

DESCRIPTORS: *Machine tools, Machining, Hydraulic systems, *Compressor blades.

The machine for machining blade palms, e.g. blades of a compressor by the method of col calibration (gaging) by rolling with profile rollers is distinguished by the fact that, for the purpose of automating the process of blade palm profile shaping, the machine is provided with an hydraulic contraption, imparting to the blade secured in it a reciprocal movement with rotation of palm profile per given angle of twist.

HEAT EXCHANGE AND HYDRODYNAMICS. 13 Aug 62 [85]p. 23 refs. FTD-TT-62-765; AD-284 136.
Order from OTS or SLA $8.10 62-33401

Unedited rough draft trans. of mono. Teploobmin ta Hidrodynamika, Kiev, 1959 [76]p.

DESCRIPTORS: *Heat exchangers, *Hydrodynamics, *Gas turbines, *Combustion chambers, Evaporators, *Laminar boundary layer, Equations, *Gas flow, Pipes, *Gas turbine nozzles, Natural gas, *Threads, Silk, Dehydration, *Gas turbine disks, Cooling.

Contents:
Experimental investigations of basic characteristics of gas turbine evaporation type combustion chamber, by T. Shvets and V. O. Khristich
Solution of equations of laminary boundary layer by generalizing the Kochin-Loytsyanskii method for the case of presence of heat exchange, by O. Virozub
On isothermal flow of gas in pipes, by M. M. Nazarchuk
Aerodynamic investigations of models of gas turbine output nozzles, by Yu. P. Gorbatii and others
Investigation of mixing processes in a gas turbine combustion chamber working on natural gas, by M. V. Stradomskii
Investigating the processes of drying a silken thread, by V. R. Borovskii
Simplified method of calculating the temperature field and maximum surrounding stress in a cooled turbine disk under starting condition, by M. O. Minyailenko
To determine the parameters of a gas flowing out from a turbine, by A. Sh. Dorfman and M. I. Saikovskii
Problem of investigating heat exchange between wall and granular material, by V. G. Fedorov and O. A. Gerashchenko
Characteristics of turbine grids of low height, by O. S. Eremenko.

Ambrok, G. S.
A STUDY OF THE LOCAL HEAT TRANSFER OF A GAS-TURBINE PROFILE. 7 June 62 [11]p. 4 refs. FTD-TT-62-454; AD-286 138.
Order from OTS or SLA $1.60 62-32519

Unedited rough draft trans. of Energomashinostroenie (USSR) 1960 [v. 6] no. 2, p. 29-31.

DESCRIPTORS: *Gas turbines, *Gas turbine blades, Turbine blades, *Heat transfer, Wind tunnel models, Model tests.

The present article is devoted to an experimental study of the heat transfer of a gas-turbine blade in a flat profile lattice with the maximum M number at the output of the lattice being M = 0.72. (Author)

Babenko, Kh. L.
AN INVESTIGATION OF THE STAGES OF A GAS TURBINE WITH A LOW RATIO D_{av}/l_{bi}. 23 Feb 62 [12]p. FTD-TT-61-318.
Order from OTS or SLA $1.60 62-24940

Unedited rough draft trans. of Teploenergetika (USSR) 1961 [v. 8] no. 2, p. 24-28.
Another trans. is available from OTS or SLA $1.60 as 62-24676, AEI/TP/T-3022, 8 Dec 61 [14]p.

DESCRIPTORS: *Gas turbines, Gas turbine blades, Gas turbine rotors, Impellers, Guide vanes, Rotation, Tests.

The results of an experimental investigation of the rotation of two model gas-turbine stages with the ratio $D_{av}/l_{bi} = 2.95$ are given. (Author)

Bogomazov, R. N., Dorfman, L. A., and Arkad'ev, B. A.
EXPERIENCE IN THE STUDY AND PERFECTION OF NOZZLES FOR AXIAL TURBINE-TYPE MACHINES [AND] THE TEMPERATURE DISTRIBUTION IN A PARTIALLY COOLED ROOT OF A TURBINE BLADE. 20 Mar 62 [29]p. 10 refs. FTD-TT-61-410.
Order from OTS or SLA $2.60 62-24938

Unedited rough draft trans. of Energomashinostroenie (USSR) 1961 [v. 7] no. 1, p. 8-12 and 38-40.

DESCRIPTORS: *Axial-flow turbines, *Axial-flow compressors, Compressors, *Gas turbine nozzles, Nozzles, Diffusers, Design, *Gas turbine blades, Cooling, Air cooled, Temperature, Distribution, Determination, Differential equations, Algebra, Gas turbines, Turbines

Dekhovich, D. A., Perfilov, V. G. and others.
AN ADJUSTABLE GUIDE VANE ASSEMBLY FOR RADIAL CENTRIPETAL TURBINES. 31 Aug 62 [5]p. FTD-TT-62-967; AD-284 130.
Order from OTS or SLA $1.10 62-33057

Unedited rough draft trans. of Soviet patent 141356 (696916/25) 10 Feb 61.

DESCRIPTORS: *Guide vanes, *Turbine blades, Turbines, Design, Heat resistant alloys, Deformation.

The adjustable guide vane assembly for radial centripetal turbines with vanes mounted on axles fitted with yoke levers which interact with the rollers of the supply disc is discussed. It differs in that, in order to compensate for thermal deformations, the axles of the vanes are placed in bushings which are mounted on a heat-resistant baffle which, when heated, can move freely on cylindrical radial joints, while the eccentric axles of the ball bearings are mounted directly on the body of the guide vane assembly. (Author)

Dorfman, L. A.
EFFECT OF RADIAL FLOW BETWEEN THE ROTATING DISC AND HOUSING ON THEIR RESISTANCE AND HEAT TRANSFER. 16 Aug 62 [15]p. 8 refs. FTD-TT-62-1038; AD-284 110.
Order from OTS or SLA $1.60 62-33406

Unedited rough draft trans. of Akademiya Nauk SSSR. O[tdelenie] T[ekhnicheskikh] N[auk]. Izvestiya: Mekhanika i Mashinostroenie, 1961, no. 4, p. 26-32.

DESCRIPTORS: Gas turbines, Gas turbine rotors, *Gas turbine disks, Disks, Rotation, Cooling, Heat transfer, Air cooled, Liquid cooled, Resistance, Fluid flow, Hydrodynamics.

The problem was set up in connection with a study of air cooling of gas turbine rotors by a radial flow and also of their liquid cooling by means of shields placed on the ends. It is necessary to investigate the effect of a flow on the hydrodynamics of stream close to a disc rotating in the housing when studying the operation of centrifugal pumps, compressors, turbines, etc. Certain results of the theoretical investigation of these problems are cited and a comparison is made with known experimental data. (Author)

Filippov, A. P.
VIBRATIONS OF A ROTATING DISK OF CONSTANT THICKNESS WITH VANES. 12 July 62 [16]p. FTD-TT-62-737. AD-285 840
Order from OTS or SLA $1.60 62-32694

Unedited rough draft trans. of Prykladna Mekhanika (USSR) 1961, v. 7, no. 6, p. 601-608.

DESCRIPTORS: Bodies of revolution, *Disks, *Turbine blades, *Guide vanes, Vibration, Thickness, Rotation, Equations of motion, Bessel functions, Gas turbine disks.

The effect of pliability in the plane of rotation of a disk with vanes on the frequency of tangential vibrations of vanes, was investigated. Grammel equations for disk of constant thickness are reduced to differential equation to determine tangential displacement v. Values of tangential and radial displacements are expressed in Bessel functions. Blade displacements without consideration of centrifugal forces are determined. Conditions of jointing disk with vanes are compiled with consideration of centrifugal forces and Coriolis forces. As result of calculating a frequency equation was derived for rotating disk with vanes. An example is given of a calculation for vanes, the length of which $l = a/2$. The frequencies of combined disk and vane vibrations for higher forms of vibrations are considerably different from frequencies, obtained for console rods. According to data of the given example, the rotation of the disk raises the vibration frequency of the vanes by approximately 20%. (Author)

Levit, M. E. and Kolosov, Yu. A.
ELIMINATING AIRCRAFT ENGINE VIBRATION. 26 June 62 [27]p. 5 refs. FTD-TT-62-738. AD-286200
Order from OTS or SLA $2.60 62-32308

Unedited rough draft trans. of mono. Tekhnologicheskie Metody Povysheniya Kachestva Detalei i Aviadvigatelei, Oborongiz, 1961, p. 130-147.

DESCRIPTORS: *Airplane engines, *Turbojet engines, *Vibration isolators, *Gas turbine rotors, Test equipment, Vacuum systems, Airplane engine mounts, Statics, Dynamics.

The existing method of balancing rotors by using two outer correction planes can lower the level of vibrations but cannot eliminate their causes and guarantee vibra-

tionless engine operation. The studies showed that the proposed method of balancing with additional (median) correction planes at operating speeds allows rotor deflection to be decreased considerably, and thus rotor stress and the vibration level are reduced. On the basis of the studies made, the following order for engine rotor balancing is recommended. The separate static balancing of parts in the rotor assembly. Dynamic balancing at low speed with the two outer driving planes. Final balancing at operating rpm using additional median correction planes. (Author)

Nikolaev, B. A.
THERMODYNAMIC CALCULATIONS FOR ROCKET ENGINES. 15 June 62 [198]p. 10 refs. FTD-TT-62-271.
Order from OTS or SLA $13.50 62-25732

Unedited rough draft trans. of mono. Termodinamicheskii Raschet Raketnykh, Moscow, 1960, 147p.

DESCRIPTORS: *Rocket motors, Combustion, *Thermodynamics, Theory, Thrust, Exhaust gases, Temperature, Specific heat, Liquid rocket propellants, Mathematical analysis, Carbon, Nitrogen, Hydrogen, Oxygen.

This book presents an approximate method for the calculation of thermodynamic parameters of the products of combustion in a rocket engine, as well as a method for the calculation of the specific thrust, without a determination of the composition of the products of combustion. The proposed method will make it possible to calculate these parameters with relatively little effort but with a sufficient degree of accuracy. This method is valid for the products of combustion of fuels composed of carbon, hydrogen, nitrogen, and oxygen, with some reservations with regard to the method for the latter. Examples of the calculations are presented. In addition, there is a description of a method for the determination of the composition of the products of combustion from the indicated fuels. (Author)

Nikolaev, Yu.
A FLAME IS TAMED. 13 Mar 62 [5]p. FTD-TT-62-275
Order from OTS or SLA $1.10 62-24343

Unedited rough draft trans. from Sovetskaya Rossiya (USSR) 1961, 16 Aug, p. 3.

DESCRIPTORS: Rockets, *Rocket motors, *Combustion chambers, Combustion, *Flames, Flame propagation, Film cooling, Liquid cooled, Rocket propulsion.

Trusov, V. M.
A METHOD TO MEASURE THE VIBRATION AMPLITUDE OF MECHANICAL SYSTEMS. 20 Mar 62 [4]p. FTD-TT-62-10.
Order from OTS or SLA $1.10 62-24934

Unedited rough draft trans. of Soviet patent 134037 (650930/26) 16 Jan 60.

DESCRIPTORS: *Turbine blades, *Vibration, Measurement, Fatigue (Mechanics).

The method of measuring the vibration amplitude of mechanical systems, for example, of turbine blades, differs in that, to exclude the effect of external conditions on the measurement result, the vibrating object is illuminated by a monochromatic illuminator through a lined photographic film, and the number of impulses during the vibration period of the object is counted by a photomultiplier and a scaler. (Author)

Vulis, L. A.
THERMAL REGIMES OF COMBUSTION, tr. by M. D. Friedman. 1961, 320p.
Order from McGraw-Hill Book Co., Inc., 330 W. 42d St., New York, 36, N. Y. $7.50

Trans. of unidentified Russian mono., n.p., n.d.

DESCRIPTORS: *Combustion, Thermodynamics.

Zastela, Yu. K. and others.
A METHOD OF STABILIZING THE COMBUSTION ZONE IN COMBUSTION CHAMBERS OF RAM-JET ENGINES. 26 Aug 62 [4]p. FTD-TT-62-965; AD-284 134.
Order from OTS or SLA $1.10 62-33055

Unedited rough draft trans. of Soviet patent 131162 (469300/40) 8 July 58.

DESCRIPTORS: *Ramjet engines, Stability, Combustion chambers, Pressure, Fuel injectors, Air, Injectors, Fuel nozzles, Combustion.

A method of stabilizing the combustion zone in combustion chambers of ram-jet engines with liquid fuel fed into a moving air flow by an atomizer is described. It differs in that, in order to reduce the pressure losses in the stabilizer, the combustion zone is stabilized by feeding compressed air in a radial direction from the axis of the atomizer through a narrow annular slit located in front of the atomizer. (Author)

Machine Parts and Mechanisms

Michell, William P.
SUPPORT FOR ROTATING SHAFT, tr. by J. B. 23 May 62, 9p. (6 figs. omitted).
Order from OTS or SLA $1.10 62-25028

Trans. of French patent 1,102,771, gr. 5, cl. 3, internat. cl. FO6c - B62d, by Glaenzer Spicer (Société Anonyme) appl 21 June 54, granted 11 May 55 (priority claimed: appl. USA, 22 June 53).

DESCRIPTORS: *Shafts, Rubber mounts, Rotation, *Mounting brackets, Universal joints, Transmissions, *Drive shafts.

The present invention has for its object an intermediate bearing support for a shaft, comprising a bracket of rubber pierced by an opening which forms a seat, a shaft in rotation traversing said opening, a bearing of the shaft maintained in the seat of said bracket merely due to the shape of the rubber bracket situated near the

opening and on either side of the seat, said rubber bracket being soft and flexible in order to offer low resistance to the excitation (stimulus) forces due to the eccentricity of the shaft, so that such intermediate bearing unit has its critical speed well below the normal state of operation of the shaft and approximately at one-third of said state. (Author)

Romanov, V. P.
EXPERIMENTAL STUDY OF FLOW IN A ROTATING CENTRIFUGAL IMPELLER. 19 Feb 62 [12]p. 4 refs. FTD-TT-61-393.
Order from OTS or SLA $1.60 62-23675

Unedited rough draft trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Neft' i Gaz (USSR) 1961 [v. 4] no. 2, p. 95-100.

DESCRIPTORS: *Centrifugal pumps, Pumps, *Impellers *Fluid flow, Experimental data, Hydrodynamics, Rotation.

This article describes a centrifugal pump with a transparent casing and a home-made electron stroboscope to catch the motion of the rapidly rotating impeller. Simultaneously, we introduced into the intake line of the pump and into the general flow a stream of india ink which when illuminated by the stroboscope was easily observed and photographed. As a result we determined the true velocity of the fluid's motion in the channels of the impeller. Their comparison with the theoretical data yields material for a refinement of the methods for calculating turbomachines. (Author)

Manufacturing Equipment and Processes

AUTOMATION OF PRODUCTION PROCESSES BY MEANS OF COMPUTER EQUIPMENT. 29 Nov 62 [16]p. JPRS: 16410.
Order from OTS or SLA $1.60 63-13334

Trans. of Mekhanizatsiya i Avtomatizatsiya Proizvodstva (USSR) 1962 [v. 16] no. 9, p. 56-58.

DESCRIPTORS: Conferences, Automation, *Industrial production, *Control systems, Digital computers, Computer logic, *Computers.

USSR INDUSTRIAL DEVELOPMENT: SOVIET PRECISION EQUIPMENT NO. 45. 26 Nov 62 [24]p. JPRS: 16354.
Order from OTS or SLA $2.60 63-13295

Trans. of Kinomekhanik (USSR) 1962, no. 9, p. 21-22; and from Sovetskaya Latviya (USSR) 1962, 25 Aug, p. 4; Zarya Vostoka (USSR) 1962, 9 Aug, p. 2; Leninskoe Znamya (USSR) 1962, 31 Aug, p. 2-3; Pravda, Leningrad (USSR) 1962, 26 Aug, p. 4; 30 Aug, p. 2.

DESCRIPTORS: Industry, *Industrial production, *Precision equipment, Electrical equipment, Television, Television cameras, Railroad cars, Castings, Thermometers, Surgical instruments, Vibrators, Rectifiers, Motion picutre projectors, Economics, Management engineering.

Contents:
Use of closed-circuit television in a railroad car building plant, by A. Abdullin and V. Nikolaev
Late deliveries of metal casting to an electrical equipment plant, by L. Mumladze
The role of the sovnarkhoz in developing new technology, by A. Levikov
New surgical instruments
Wasted time due to poor organization at casting shop of vibrator plant, by N. Chirskov
Standard-rectifiers being produced for assembly of motion-picture equipment
Standard-type electro-distributing devices being produced for assembly of motion-picture equipment.

USSR INDUSTRIAL DEVELOPMENT: SOVIET PRECISION EQUIPMENT NO. 46. 3 Dec 62 [10]p. JPRS: 16480.
Order from OTS or SLA $1.10 63-13370

Trans. of Shakhtnoe Stroitel'stvo (USSR) 1962 [v. 6] no. 10, back cover.

DESCRIPTORS: Industry, *Industrial production, *Precision equipment, *Electrical equipment, Electric cables, Detectors, Detonators, Electric detonators, Circuit testers, Mines, Hydraulic systems, Lighting systems, Drilling machines, Drills, Shafts.

Contents:
The IPK cable-fault detector
The IVTs-2 detonating-circuit tester
The GS-60M explosion-proof hydraulic lamp
The P-31 drilling unit
The SGR-4M hydraulic mining drill
The RUP2 enlarger of coal-slide shafts.

USSR INDUSTRIAL DEVELOPMENT: SOVIET REGIONAL ECONOMY NO. 23. 30 Nov 62 [30]p. JPRS: 16450.
Order from OTS or SLA $2.60 63-13344

Trans. of Planovoe Khozyaistvo (USSR) 1962 [v. 39] no. 9, p. 65-71; Narodnoe Khozyaistvo Kazakhstana (USSR) 1962 [v. 20, no. 7] p. 37-41; and from Trud, Moscow (USSR) 1962, 11 Sep, p. 1; Sovetskaya Moldaviya (USSR) 1962, 12 Sep; Pravda Ukrainy (USSR) 1962, 11 Sep, p. 2.

DESCRIPTORS: Industry, *Industrial production, Economics, *Machines, Production, Geography, Metallurgy, Electricity, Transmission lines, Construction material industry, Costs.

Contents:
Economic effectiveness of the development of machine

building in regions east of the Urals, by M. Shkol'nikov
Twenty new enterprises
At the most important projects
Specialization and concentration in machine building, by A. Basov
Measures were taken too late, by S. Akhmatov.

USSR INDUSTRIAL DEVELOPMENT: SOVIET REGIONAL ECONOMY NO. 24. 3 Dec 62 [34]p.
JPRS: 16482.
Order from OTS or SLA $3.60 63-13342

Trans. of Narodnoe Khozyaistvo Kazakhstana (USSR) 1962 [v. 20] no. 8, p. 9-10; Kommunist, Moscow (USSR) 1962 [v. 39] no. 15, p. 45-[53] and from Pravda Ukrainy (USSR) 1962, 22 Sep, p. 2.

DESCRIPTORS: Industry, *Industrial production, Economics, *Management engineering, *Machines, Construction, *Cordage, Production, Costs, Industrial plants.

Contents:
Some questions on improving the work of industrial enterprises, by N. Sobol'
A major reserve for increasing machinery construction production, by V. Lisitsyn
The problem of hemp production, by A. Sinichenko
Production problems in western Kazakhstan.

Fedotikov, A. P.
SHORT HANDBOOK OF TECHNOLOGY AND MACHINE BUILDING: SELECTED PARTS. 5 Sep 62 [130]p.
FTD-TT-62-222; AD-286 590.
Order from OTS $2.75 63-11522

Unedited rough draft trans. of mono. Kratkii Spravochnik Tekhnologa-Mashinostroitelya, Moscow, 1960, p. 60-61, 64-65, 69, 78-97, 135, 173, 176-191, 194, 224-226, 262-317, 338, 358-359, 361-390.

DESCRIPTORS: Handbooks, Tables, Machines, Construction, *Metals, Alloys, *Plastics, *Paper, *Wood, Physical properties, Mechanical properties, *Dies, *Welding, *Soldering *Coatings, Heat treatment, Manufacturing methods.

A collection of tables pertaining to the mechanical and physical properties of various non-ferrous metals and non-metallic materials; to fittings and allowances for plasto-forming patterns; and to welding, soldering and other metal treatment techniques.

Meurant, Jules.
METHOD AND APPARATUS FOR THE LARGE SCALE ELECTRO-PLATING OF SMALL OBJECTS USING A ROTATING CATHODE FRAME. 5 Jan 49, 3p. (figs. omitted).
Order from OTS or SLA $1.10 62-18427

Trans. of German patent 152,724, 24 June 04, pat. from 17 June 03.

DESCRIPTORS: *Electroplating, Manufacturing methods, Cathodes (Electrolytic cell).

Objects to be electro-plated are individually mounted on a rotating cathode frame so that their axes are not parallel to the axis of rotation of the cathode but rather in a radial direction with respect thereto. The means and method for holding the objects on the frame are such that they have a certain play and are supported in the frame on various portions of their areas, one after the other. The objects to be treated offer their entire areas to the anode since they can never cover one another and on the other hand, the position of the points of contact of these objects with respect to their supports is changing constantly.

Pavlov, I. M.
RESEARCH ON THE ROLLING PROCESS. [1960] [34]p. 252 refs.
Order from OTS or SLA $3.60 62-14672

Trans. of mono. Metallurgiya S. S. S. R. 1917-57, v. 2, ed. by I. P. Bardin [Moscow] 1959, p. 56-81. Another trans. is available from BISI $8 as BISI-1542 [1960]; a complete trans. of v. 2 is available from LC or SLA in 4 pts. as 60-27024-(1-4) MCL-455, pts. 1-4; and from OTS $10.00 in 60-51188, 1961, 997p.

DESCRIPTORS: *Rolling mills, Industrial research, *Metallurgy, Manufacturing methods, Friction, Power, Energy, Deformation, Velocity, Bibliography.

For abstract see Technical Translations 3: 603, 1960.

Sukach, S. A.
WELDING CYLINDERS OF STEAM TURBINES MADE FROM BRANDS 20KhMFL AND 15Kh1M1FL PERLITE CLASS STEEL. 15 May 62 [12]p. (figs. omitted) 4 refs. FTD-TT-62-577.
Order from OTS or SLA $1.60 62-25852

Unedited rough draft trans. of mono. Nekotorye Voprosy Tekhnologii Proizvodstva Turbin [Problems of the Production Technology of Turbines] Moscow/Leningrad, 1960, p. 248-253.

DESCRIPTORS: *Steam turbines, Turbines, *Engine cylinders, Cylindrical bodies, *Welding, Welded joints, *Steel, *Pearlite, Temperature, Mechanical properties.

Vorobin, L. D.
ELECTROSPARK METAL MACHINING AT THE KALUGA TURBINE PLANT. 18 Sep 62, 2p. AID rept. 62-134; NASA N62-16251; AD-285 337.
Order from OTS or SLA $1.10 62-33388

Abstract trans. of Byulleten' Tekhniko-Ekonomicheskoi Informatsii (USSR) 1962, no. 6, p. 21-24.

DESCRIPTORS: Metals, Steel, *Spark machining, Dies, Gas turbine blades, Turbine blades, Impellers, Machining, *Turbines, *Industrial plants, Economics.

USSR INDUSTRIAL DEVELOPMENT: SOVIET AUTOMOTIVE INDUSTRY NO. 24. 13 Nov 62 [16]p. JPRS: 16150.
Order from OTS or SLA $1.60 63-13068

Trans. from Sovetskaya Litva (USSR) 1962, 28 July, p. 4; Ekonomicheskaya Gazeta (USSR) 1962 [no. 32 (53)] p. 35 (excerpts); [no. 33 (54)] p. 36; [no. 34 (55)] p. 15 and 34; Izvestiya (USSR) 1962, 7 Aug, p. 3 (excerpts).

DESCRIPTORS: *Industrial production, *Automotive industry, Vehicles, *Passenger vehicles, Industrial plants, *Cargo vehicles, Maintenance, *Conveyors, Economics.

Contents:
The Zaporozhets goes out on the highways, by A. Okunev
Excellent equipment for the Soviet motor sport, by B. Tramm
The L'vov motor vehicle firm
Where are heavy dump trucks to be repaired, by G. Rimsha and A. Stakhiev
Inter-shop conveyers at Gor'kii plant, by V. Zil'berberg
Neglecting economic calculations costs dearly, by V. Sternin.

Samoilov, S.
A GAS PRODUCER LOCOMOTIVE (Gazogeneratornyi Teplovoz). [1962] 3p. [Warren Spring Lab. Trans.] NT571; [DSIR] NLL M. 4976.
Order from OTS or SLA $1.10 62-25900

Trans. of Nauka i Zhizn (USSR) 1953 [v. 20, no. 5] p. 36.

DESCRIPTORS: *Locomotives, Internal combustion engines, Diesel engines, Control systems, *Gas generator engines.

Schelzel, Manfred.
GREAT PROSPECTS OF MARITIME SHIPPING IN THE GERMAN DEMOCRATIC REPUBLIC (Grosse Perspektive der Seeschiffahrt in der Deutschen Demokratischen Republik) tr. by James Walker. [1962] [9]p.
Order from OTS or SLA $1.10 62-25706

Trans. of Schiffbautechnik (Germany) 1959 [v. 9] no. 7, p. 337-340.

DESCRIPTORS: *Transportation, Commerce, *East Germany, Merchant vessels.

ENAMELING OF ZINC ALLOY DIE CASTINGS. 15 June 46 [5]p.
Available on loan from SLA $1.10 62-20289

Trans. of la Pratique des Industries Mécaniques (France) 1941 [v. 23] Oct, p. 159-160.

DESCRIPTORS: Finishes, *Enamel coatings, *Zinc alloys, Castings.

Members formed from zinc may receive a strong, adherent, and durable enamel coating by means of a preliminary, rather simple treatment. (Author)

PROCESS FOR RENDERING SYNTHETIC FOAM PERMANENTLY ADHESIVE AND ARTICLES OF SYNTHETIC FOAM TREATED BY THIS PROCESS. [1962] 3p.
Order from OTS or SLA $1.10 62-16349

Trans. of Belgian patent 601,091 by Aderel S.P.R.L., publ. 8 Mar 61.

DESCRIPTORS: *Foams, *Adhesion, Adhesives, Stability.

Balan, Valentina.
PHOTOMICROSCOPY: A NEW METHOD OF ANALYSIS FOR CONTROLLING THE QUALITY OF MATCHES. [1961] [10]p. (9 figs. omitted). AERDL T-1212; RIS E 736.
Order from OTS or SLA $1.10 61-28947

Trans. of Industria Lemnului (Rumania) 1960 [v. 9] no. 4, p. 140-143.
Also available from RIS $30.00 as RIS E-736.

DESCRIPTORS: *Microphotography, *Microscopy, Quality control, *Pyrophoric materials, Combustion, Flames, *Inflammable materials.

Blinov, B. A. and Rumyantseva, L. P.
DETERMINATION OF WASHING CAPACITY (Ob Opredeleniya Moyushchei Sposobnosti). Sep 62 [5]p 7 refs. RTS 2157.
Order from OTS or SLA $1.10 62-32967

Trans. of Masloboino-Zhirovaya Prom[yshlennost'] (USSR) 1961, v. 27, no. 12, p. 22-24.

DESCRIPTORS: *Soaps, *Detergents, Test methods, *Textiles, *Washing machines.

Ginzburg, Ts. G., Kind, V. V., and Litvinova, R. E.
SOME PROBLEMS ON THE HEAT EVOLUTION OF HARDENED CEMENTS (Nekotorye Voprosy Svyazannye s Teplovydeleniem pri Tverdenii Tsementov) tr. by H. A. Berman. [1962] 9p.
Order from OTS or SLA $1.10 62-33214

Trans. of Tsement (USSR) 1960, v. 26, no. 4, p. 11-15.

DESCRIPTORS: *Cements, Water, Concrete, *Specific heat, Mortar, Calorimeters, Temperature, *Hardening.

Hasselberger, Walter.
SELF-ADHESIVE CUT-OUTS FROM PAPER, PASTEBOARD, OR THE LIKE, IN THE FORM OF ROLLS AND STAPLES FOR PROCESSING IN PACKING MACHINES. [1962] [3p.] (figs. omitted) 1 ref.
Available on loan from SLA $1.10 62-20401

Trans. of German patent 1,133,229, 12 July 62, appl. 9 Oct 61, by Maria Soell Papierverarbeitung, G. m. b. H.

DESCRIPTORS: *Adhesive tapes, Production, *Packing materials, Paper, Containers, Seals (Stoppers).

Self-adhesive cut-outs from paper, pasteboard and the like in the form of rolls or staples for consumption in packing machines are described in which the self-adhesive coatings, formed in a known manner, for example, based on latices, which cover the entire tape or cut-out surfaces and which are coated on the surface sections which are intended for the formation of the free inner walls of the container with a coating which counter acts the adhesiveness and decreases the frictional resistance through formation of smooth surfaces and which are made from thin elastic films of solidified lacquers, such as cellulose lacquer. (Author)

Iino, Hiroichi, Tsukasa, Masahiro and others.
ON THE MIXING OF CIS- AND TRANS-1,4-POLYBUTADIENE. Rept. 1 of Studies on Blend Polymer. Nov 62, 20p. 12 refs.
Order from SA $25.00 SA Code-R-O

Trans. of Nihon Gomu Kyokaishi (Japan) 1962, v. 35, no. 6, p. 404-413.

DESCRIPTORS: *Synthetic rubber, *Butadienes, Molecular isomerism, Mixtures, Viscosity, Phase transitions Mechanical properties, Infrared spectroscopy, Electron microscopy, X-ray diffraction analysis, Vulcanization.

Krayushkin, I. F. and Mazurov, D. Ya.
AUTOMATIC DETERMINATION OF DUST IN FLUE GASES FROM ROTARY KILNS (Avtomaticheskoe Opredelenie Zapylennosti Dymovykh Gazov Vrashchayushchikhsya). [1962] 3p. [Warren Spring Lab. Trans.] NT582; [DSIR] NLL M. 4979.
Order from OTS or SLA $1.10 62-25903

Trans. of Tsement (USSR) 1955 [v. 21] no. 4, p. 24-25.

DESCRIPTORS: *Rotary furnaces, *Particles, *Waste gases, Separation, Automatic, Photoelectric cells, *Dusts, *Cements.

Kühne, H. and others.
INTERNAL STRESSES IN THIN FILMS OF ORGANIC BINDERS. 15 Jan 51, 5p. (figs. omitted).
Order from SLA $1.10 62-18399

Trans. of Schweizerische Bauzeitung, 1949 [v. 67, no. 38] p. 543-545.

DESCRIPTORS: *Bonding, Organic materials, *Adhesives, Thin films, Stresses, Surface properties.

Lundh, G.
BAG-SHAPED WRAPPER PROVIDED WITH CARRYING HANDLE, tr. by E. B. F. 9 Mar 62, 3p. (1 fig. omitted).
Order from OTS or SLA $1.10 62-23742

Trans. of Swedish patent 144,520, cl. 54 b:4/30, by Katrinefors AB, appl. 16 Sep 49, granted 7 Jan 54, pub. 16 Mar 54.

DESCRIPTORS: Packaging, *Paper, Containers, Materials, *Reinforcing materials.

The invention relates to a bag-shaped wrapper, collapsible to a flat condition, having a rectangular, essentially flat bottom. The invention is characterized in that a strip of material, extending across the flat bottom of the wrapper, is bent around and fastened only at its ends to the two opposite wide sidewalls of the wrapper, in such a manner that the middle portion of the strip material is in contact with the bottom and serves both as a reinforcement for the bottom of the bag during the filling operation and as a carrying handle after the bag has been closed. After filling with the material to be packaged, the other end of the wrapper is closed. The strip material preferably consists of a paper strip twisted a number of times in the longitudinal direction.

Minenko, V. I., Petrov, S. M., and Ivanova, N. S.
INVESTIGATION OF THE PROPERTIES OF MELTS OF THE $PbO-SiO_2$ SYSTEMS BY THE ELECTROMOTIVE FORCE METHOD AT 1200°C. [1962] [7]p. 19 refs. C. E. Trans. 2410; [DSIR] NLL M. 6170.
Order from OTS or SLA $1.10 62-25933

Trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Khimiya i Khimicheskaya Tekhnologiya (USSR) 1961, v. 4, no. 1, p. 3-6.

DESCRIPTORS: *Lead compounds, Oxides, *Silicon compounds, Glass, Enamel coatings, Slags, Electrical properties.

The E. M. F. of cells in the system $PbO-SiO_2$ has been measured at 1200°C over the whole range of concentrations in which this system is in a molten state. It has been established that at 1200° compounds may exist in the $PbO-SiO_2$ system the simplest formulae for which are: $4PbO \cdot SiO_2$, $2PbO \cdot SiO_2$, $3PbO \cdot 2SiO_2$, $PbO \cdot SiO_2$, $2PbO \cdot 3SiO_2$, $PbO \cdot SiO_2$. It has been shown that to obtain reliable information on the composition of the compounds

formed in the molten silicates it is necessary to carefully investigate the properties of the simplest systems over a wide range of concentrations for a large number of compositions, where the component, the effect of which is being investigated, is varied only slightly. (Author)

Pfrengle, O. and Hintz, I.
PAPER CHROMATOGRAPHIC IDENTIFICATION OF SWELLING AGENTS ESPECIALLY IN DETERGENTS. [1962] [6]p. (6 figs. omitted).
Order from SLA $1.10 62-16192

Trans. of Fette Seifen Anstrichmittel (West Germany) 1961, v. 63, p. 630-632.

DESCRIPTORS: *Detergents, Identification, *Paper chromatography, Adsorption, Ion exchange, Detection.

Ritzerfeld, Wilhelm and Ritzerfeld, Gerhard.
PROCESSES FOR THE PRODUCTION OF REPRODUCIBLE PRINTING PLATES. [1962] 3p. (figs. omitted).
Available on loan from SLA 62-20405

Trans. of German patent 1,133,740, 26 July 62, appl. 6 July 60.

DESCRIPTORS: *Printing, *Photographic plates, Production, Photographic emulsions, Infrared radiation

A process is given for the production of printing plates, which are preferably reproducible by means of alcohol, of a sample to be transcribed or original copy or proof with the use of differentiating infrared irradiation by a reflex or ray penetration method, in which a printing plate is used which has a layer which contains at least one component of a color-forming material, and one other reaction component in the formation of the pigment is introduced as a second layer on the printing plate or is worked into the layer of a contact sheet, and through the heat evolution arising from the differentiating infrared irradiation a chemical reaction of the components takes place in the formation of the reproducible pigment. (Author)

Volchek, I. Z.
DEPENDENCE OF HYDRAULIC ACTIVITIES OF HIGH-ALUMINA SLAGS ON THEIR PHASE CHARACTERISTICS (CRYSTALLINITY AND COMPOSITION). Dec 57 [5]p. 6 refs.
BISI Trans. no. 774; NLL M.4164.
Order from OTS or SLA $1.10 62-24171

Trans. of Akademiya Nauk SSSR. Doklady, 1953, v. 90, no. 3, p. 437-440.

DESCRIPTORS: *Aluminum compounds, *Oxides, *Slags, Crystallization, Phase studies, Chemical analysis, *Hydraulic research.

Slags which vitrified in the $5CaO \cdot 3Al_2O_3$ and $CaO \cdot Al_2O_3$ fields have fairly high hydraulic activity, but the activity of the vitreous varieties of both compositions is less than that of the crystalline forms. The $5CaO \cdot Al_2O_3$ field composition has a maximum hydraulic activity at a certain ratio of crystalline to amorphous material, at which the activity is higher than in the pure crystalline or pure vitreous material. The $CaO.Al_2O_3$ field composition has greatest hydraulic activity when slowly cooled and therefore containing mainly crystalline material. After it was exposed 28 days to water vapour the $CaO \cdot Al_2O_3$ slag produced a hydration product, most of which consisted of fine spherolites with refractive indices $N_g = 1.520 \pm 0.002$, $N_p = 1.505 \pm 0.003$. The character and optical properties of these crystals show that the compound was $2CaO \cdot Al_2O_3 \cdot (7\text{-}9)\,H_2O$; the hydration products also contained unhydrated glass and a small proportion of calcium carbonate crystals. These results show that (1) vitreous high-alumina slags have comparatively high hydraulic activities, and (2) by suitable crystallizing conditions it is possible to improve considerably the hydraulic activities of certain kinds of high-alumina slag.

Ceramics and Refractories

Bhattacharya, A. and Wille Rudolf.
THE INFLUENCE OF SPIKES ON THE COOLING OF SHORT CYLINDERS UNDER OPEN BLAST COOLING. [1962] [5]p. (15 figs. omitted) 4 refs.
Order from SLA $1.10 62-14245

Trans. of Glastechn[ische] Ber[ichte] (West Germany) 1959, v. 32, no. 10, p. 397-401.
Another trans. is available from ATS $9.35 as ATS-68N52G [1961] 7p.

DESCRIPTORS: *Glass, Cooling, *Heat exchangers, Cylindrical bodies, Air cooled.

The increased transmission of heat from a wall to air due to spikes or pegs instead of ribs has often been confirmed for tubes in a two-dimensional air stream. In glass machines the flow of cooling air is three-dimensional. In this case, too, the transmission of heat is increased by spikes. The air-blast from two diametrally arranged circular nozzles can be reduced by 70% for spiked molds, as compared with smooth-walled molds. (Author)

Borisenko, A. I.
DIFFUSIONAL MOBILITY OF COBALT IN A PROTECTIVE COATING ON MOLYBDENUM. 14 Feb 62 [14]p. 8 refs. FTD-TT-61-440.
Order from OTS or SLA $1.60 63-13391

Unedited rough draft trans. of #Zhurnal Prikladnoi Khimii (USSR) 1961, v. 34, no. 10, p. 2175-2183.

DESCRIPTORS: Protective coverings, *Refractory coatings, *Enamel coatings, *Molybdenum, Shielding, Labelled substances, *Cobalt, Diffusion.

Dietzel, Adolph and Deeg, Emil.
A DYNAMIC MODEL OF GLASS STRUCTURE (Ein Dynamisches Modell der Glasstruktur). [1962] [18]p. (foreign text included) 8 refs.
Order from SLA $1.60 62-18108

Trans. of Glastechn[ische] Ber[ichte] (West Germany) 1957, v. 30, no. 7, p. 282-287.

DESCRIPTORS: *Glass, Dynamics, Crystal structure, Model tests, Tensile properties, *Fused materials, Dioxides, Silicon compounds, Polarization, Ions, Mechanical properties, Stresses.

Dubrovo, S. K. and Shmidt, Yu. A.
PHYSICO-CHEMICAL PROPERTIES OF GLASS-FORMING LITHIUM SILICATES AND ALUMINOSILICATES (Fiziko-Khimicheskie Svoistva Stekloobraznykh Silikatov i Alyumosilikatov Litiya). [1962] [20]p. (foreign text included) 14 refs.
Order from OTS or SLA $1.60 62-18109

Trans. of #Zhur[nal] Priklad[noi] Khim[ii] (USSR) 1959, v. 32 [no. 4] p. 742-749.

DESCRIPTORS: Glass, Materials, Ceramic materials, *Lithium compounds, *Aluminum compounds, *Silicates, Physical properties, Chemical properties.

Glass was obtained in the system Li_2O- SiO_2, which contained between 16.7 and 50 mole % Li_2O, and also in the system Li_2O- Al_2O_3 - SiO_2, which contained between 12.5 and 32.8 mole % Li_2O, and between 1.6 and 25 mole % of Al_2O_3. The rate of crystallization of these glasses goes up, the more the composition approaches the one of metasilicates. (1:14, 1:1.2, 1 : 1). The lithium aluminosilicate glasses are less prone to crystallize. The lithium silicate and - aluminosilicate glasses show higher values for the refractive indices, yet lesses specific weights, molal volumes and refractions of the oxygen ion, than the corresponding, analogous Na glasses. On the base of the calculations of the basic properties (the partial ones) of aluminum oxide in the glass- forming silicates of Li and Na one may conclude that the Al is present therein in a coördination number of 4. (Author)

Flörke, Otto W.
ON SILICIC ACID CRYSTALS IN GLASS (Über Kieselsäurekristalle in Gläsern). [1962] [31]p. (foreign text included) 26 refs.
Order from SLA $3.60 62-14886

Trans. of Glastechnische Berichte (West Germany) 1959 v. 32, no. 1, p. 1-9.

DESCRIPTORS: *Glass, *Silicic acids, Silicates, Crystallization, Crystal structure, Quartz, Phase transitions, Microstructure.

After an introductory discussion of the phase diagram of silicic acid, the different technically important crystal types of SiO_2 are defined; furthermore a survey of the growth of crystals and crystal skeleton is given. Following this the different crystal types are discussed in the varying forms in which they appear in glass: Quartz as frit residue or from the silicate material, quartz as crystallization in the glass, cristobalite from solid body reactions, cristobalite as finely dendritic and coarsely dendritic crystallization in the glass and tridymite crystallization in the glass. In conclusion a delineation between cristobalite and tridymite is given. (Author)

Günther, Rudolf and Kahlert, Wolfgang.
VARIATIONS IN THE HEAT CONSUMPTION OF TANKS AND THEIR CAUSES (Veränderungen des Warmeverbrauchs von Wannen und ihre Ursachen). [1962] [36]p. (foreign text included) 9 refs.
Order from SLA $3.60 62-18112

Trans. of Glastechn[ische] Ber[ichte] (West Germany) 1956, v. 29, no. 5, p. 174-183.

DESCRIPTORS: *Glass, Melting, *Heat exchangers, Heat of fussion, Tanks, Numerical analysis, Curve fitting, Periodic variations, *Fuel consumption, Gas generating systems, Specific heat, Aging.

Hänlein, W.
CONCERNING THE SPECIFIC GRAVITY OF GLASS IN DEPENDENCE ON THE TEMPERATURE (Über das Spezifische Gewicht von Glas in Abhängigkeit von der Temperatur). [1962] [17]p. (foreign text included) 20 refs.
Order from SLA $1.60 62-18113

Trans. of Glastechnische Berichte (Germany) 1932, v. 10, no. 3, p. 126-130.

DESCRIPTORS: *Glass, *Density, *Temperature, Calcium compounds, Oxides, Magnesium compounds, Transformations (Mathematics), Series, Measure theory.

There is described a method for the determination of the specific gravity of glasses at high temperatures. For the relation between the temperature and the specific gravity above the transformation point there results a completely linear relationship. The existence of an aggregation point is improbable on the basis of this linearity. (Author)

Hübner, Hans-Joachin.
MEASUREMENT OF THE SURFACE TEMPERATURE OF GLASSES WHICH HAVE BEEN HEATED BY RADIATION. [1962] 24p. (figs. omitted) 9 refs.
Order from SLA $2.60 62-18277

Trans. of Zeitschrift für Angewandte Physik (West Germany) 1955, v. 7, no. 6, p. 273-279.

DESCRIPTORS: *Glass, *Surface temperatures, Measurement, Heat, Thermal radiation, *Light globes, Lighting equipment, Incandescent lamps, Heat transfer, *Optical analysis, *Blackbody radiation, Reflection, Thermionic emission.

For measurement of surface temperature (S. T.) of glass bulbs in lighted electric lamps we have developed an optical method which depends on comparison of the spectral radiation density of the measured position on the bulb and that of a black body of known temperature at $\lambda = 7.76\mu$. By measurements on the hot glass of the bulb we have shown that at this wave length the reflecting power is safely below 0.01 and therefore the emission power is at least 0.99. In three different types of lamps with 100 w. power uptake we have measured the S. T. on each three different positions, depending on the charge (load), and we have compared these temperatures with those found by means of fusible substances on thermocouples applied or cemented on. We

have showed that if certain precautions are observed with the conventional methods, the S.T. is obtained for all practical purposes in good agreement with the true value. (Author)

Hustinx, Edmond.
PROCEDURE FOR THE MANUFACTURE OF GLASS AND OF A MASS WHICH CONTAINS ALKALI SILICATE (Verfahren zum Herstellen von Glas und von Alkalisilikat Enthaltender Masse). [1961] [12]p. (foreign text included).
Order from OTS or SLA $1.60 62-14539

Trans. of West German patent 1100888, cl. 32b 1, Internat. cl. C 03 c, application filed under serial no. H 34980 IVc/32b, on 2 Dec 58, opened for public inspect. 2 Mar 61 (Priority: Holland, 3 Dec 57).

DESCRIPTORS: *Glass, Manufacturing methods, *Silicates, Potassium compounds, Sodium compounds, Metals.

Kordes, Ernest.
BINARY AND PSEUDOBINARY GLASSES WITHOUT NOTEWORTHY PACKING EFFECT. Pt. 3 of the Physico Chemical Research on Microstructure of Glasses. [1962] 10p. (5 figs. 7 tables omitted).
Order from SLA $1.10 62-10559

Trans. of Leipzig U. Mineralogical and Actrographic Inst. Rept-398, 1939 (?).

DESCRIPTORS: *Glass, Microstructure, Physical chemistry.

Lehnert, Lothar H.
INVESTIGATION OF STRESSES IN HOLLOW GLASS VESSELS (Über die Spannungsprüfung von Hohlglasgefässen). [1962] [14]p. (foreign text included) 3 refs.
Order from SLA $1.60 62-18126

Trans. of Glastechn[ische] Berichte (West Germany) 1958, v. 31, no. 5, p. 176-179.

DESCRIPTORS: *Pressure vessels, Walls, Photoelasticity, *Glass, Stresses, Model tests, Light transmission, Refractive properties.

Mach, O.
CORRELATION BETWEEN COMPOSITION AND THE COEFFICIENT OF THERMAL DILATATION OF BORO-LEAD GLASS SOLDERS OF LOW SOFTENING POINT (Souvislost mezi Slozenim a Soucinitelem Teplotni Roztaznosti u Borito-Olovnatych Nizkotavitelnych Skelnych Pajek). [1962] [9]p. (foreign text included) 2 refs.
Order from SLA $1.10 62-18128

Trans. of Silikaty (Czechoslovakia) 1958, v. 2, no. 3, p. 269-272.

DESCRIPTORS: Statistical functions, *Glass, *Soldering, Thermal expansion, *Boron compounds, *Lead, Chemical analysis, *Oxides.

Okamura, Tsuneo and Uno, Tadoru.
COMPONENTS OF GASES PRESENT IN BUBBLES IN GLASS. Pt. 3 of Study on Components of Gases in Glass. [1962] [28]p. (foreign text included) 12 refs.
Order from SLA $2.60 62-10961

Trans. of [Asahi Garasu Kenkyu Hokoku] (Japan) 1954, v. 4, p. 8-18.

DESCRIPTORS: *Glass, Melting, Bubbles, Gases, Water vapor, Sulfur compounds, Dioxides, Carbon dioxide.

The present report concerns on a study, which was intended to obtain fundamental data on bubbles left in glass by analyzing the compositions of gas contents in the bubbles. For clarification of bubbling phenomenon occurring in course of glass melting, analyses of compositions of gases in the bubbles were conducted, and an original method was devised to enable analysis of gases in the bubbles existent in molten glass that contains sulphates. This method made it possible to easily, quickly and fully accurately analyze such gases, and using this method, an experiment was performed on the bubbles left in glass in course of melting and on the influence of different batch compositions upon gases in the bubbles. (Author)

Okamura, Tsuneo, Sasaki, Tamotsu, and Uemura, Shiro.
GAS COMPONENTS CONTAINED IN MOLTEN GLASS IN FOURCAULT TANK FURNACE. Pt. 8 of Study on Components of Gases in Glass. [1962] [69]p. (foreign text included) 8 refs.
Order from SLA $6.60 62-14500

Trans. of [Asahi Garasu Kenkyu Hokoku] (Japan) 1959, v. 9, no. 1, p. 1-29.

DESCRIPTORS: *Furnaces, *Glass, Melting, Bubbles, Gases, Sulfur compounds, Dioxides, Statistical analysis, Refractory materials.

The methods for analysis of both the dissolved gas in glass and the gas contained in the bubbles, have been applied to a study of refining process in the Fourcault tank furnaces. Their results were as follows: For the analysis of the dissolved gas, samples of glass were gathered simultaneously every 8 hours from the front of No. 2 floater, the central channel, and at No. 5 drawing machine. Statistical analysis of the results showed that there was no change in the gas content in these glasses at a probability level of 5%. There were some cases where the number of bubbles in the sheet glass drawn from each drawing machine fluctuated considerably with time. The majority of all these bubbles contained sulphur dioxide as a main component, and the bubbles contained carbon dioxide were very few. When the number of bubbles were few, the majority contained air. The samples of sheet glass from three similar furnaces showed an identical tendency.

Okhotin, M. V., Levina, R. S., and Vinogradova, E. K.
THE INVESTIGATION OF THE CRYSTALLIZATION PROCESS OF SILICATE GLASSES BY THE TEMPERING METHOD (Izuchenie Protsessa Kristallizatsii Silikatnykh Stekol Metodom Zakalki). [1962] [15]p. (foreign text included).
Order from OTS or SLA $1.60 62-14900

Trans. of Steklo i Keramika (USSR) 1954, v. 11, no. 6, p. 8-11.

DESCRIPTORS: *Glass, *Silicates, Crystallization, Manufacturing methods.

Plumat, E. and Jaupain, M.
METHOD OF EXAMINATION OF BUBBLE DEVELOPMENT AT THE POINT OF CONTACT WITH REFRACTORIES (Methode d'Examen du Degagement de Bulles au Contact de Materiaux Refractaires). [1962] [37]p. (foreign text included).
Order from SLA $3.60 62-10940

Trans. of mono. Symposium on the Fining of Glass [held at Gilly, Belgium] June 55. [Proceedings] p. 181-198.

DESCRIPTORS: *Refractory materials, Test methods, Microstructure, Furnaces, Bubbles.

The plate method consists in the immersion of a small, flat sample of the refractory to be tested, between two sheets of fined glass, in a boat of Alumina or Pt. The length of time for the experiment and the temperature are both standardized, the method of the examination for bubbles is described. In order to establish a connection between laboratory and plant findings, samples of a suitable size are placed at selected spots into the glass furnace, where they remain for various lengths of time. Equipment is described in which the development of bubbles can be determined as a function of the time. (Author)

Porai-Koshits, E. A.
THE SUBMICROSCOPIC STRUCTURE OF SEVERAL COMPLEX GLASSES (Submikroskopische Struktur einiger Komplexer Gläser). [1962] [33]p. (foreign text included) 56 refs.
Order from SLA $3.60 62-18131

Trans. of Glastechn[ische] Ber[ichte] (West Germany) 1959, v. 32, no. 11, p. 450-459.

DESCRIPTORS: *Glass, Microstructure, *Porous glass, Heat treatment, Particles, Light, Reflection, Sodium compounds, Boron compounds, Silicates, Microanalysis

A long discussion between the representatives of the "Crystallite" theory and those of the "network" theory led to the concept of the "Polymeric Crystallite" structure of single component glasses. The problem of the physical order in single component glasses was replaced by the problem of the chemical order in complex glasses. In order to solve this problem the low angle scattering was used first on porous glasses of the "Vycor" type and then on common sodium boro-silicate glasses. The size and the electron distribution of regions of inhomogeneity are determined. These regions depend upon the thermal treatment of the glasses and are the cause of their opalescence. The intensity of the low angle scattering was calculated on glasses having small inhomogeneous regions and the question concerning the submicroscopic structure of glasses having different compositions was discussed. (Author)

Simmingsköld, B. and Jönsson, B. R.
A STUDY ON THE PURIFICATION-DISCOLORATION-SOLARIZATION PROBLEM COMPLEX (En Studie Rörande Problemkomplexet Luttring-Avfärgning-Solarisation). [1962] [47]p. (foreign text included) 7 refs.
Order from SLA $4.60 62-14884

Trans. of Glastek[nisk] Tidsk[rift] (Sweden) 1955, v. 10, no. 6, p. 151-159 and 162-168.

DESCRIPTORS: *Glass, Purification, Discoloration, *Cobalt, *Didymium, *Selenium, Smelting, Arsenic, Sulfates, Nitrates, Fluorspar, *Cerium compounds, Oxides, Sodium compounds, Silicates, Flourides, Lead compounds.

This work examines the possibilities of using in the selenium-cobalt decolorization or selenium-didymium decolorization other purification agents than arsenic, in order to get a smaller solarization tendency through this. The investigation therefore comprised the following: purification experiments on a laboratory scale, besides some experiments on a full scale; smelting experiments in an oil-fired laboratory furnace concerning the preparation of well decolorized glass; and examination of the solarization properties of the sample glass. (Author)

Stevels, J. M.
TEN YEARS OF EVOLUTION OF THE TECHNOLOGY AND THE INVESTIGATION OF GLASS (Tien Jaar Evolutie van de Technologie en het Onderzoek van Glas). [1962] [37]p. (foreign text included) 9 refs.
Order from SLA $3.60 62-18139

Trans. of Chemisch Weekblad (Netherlands) 1959, v. 55, p. 571-579.

DESCRIPTORS: *Glass, Lattices, Laboratories, *Ceramic materials, Processing, Industrial research, Crystallization, Guided missiles.

Voronin, N. I., Krasotkina, N. I. and others.
TRAIL BATCH OF PRODUCTION CARBORUNDUM REFRACTORIES WITH A SILICON NITRIDE BINDER. [1962] [10]p. C.E.Trans. 2466; [DSIR] NLL M.6320.
Order from OTS or SLA $1.10 62-25952

Trans. of Ogneupory (USSR) 1961 [v. 26] no. 4, p. 157-163.

DESCRIPTORS: *Carborundum, Refractory materials, Production, Silicon compounds, Nitrides, Binders.

The method of producing carborundum refractories with a silicon nitride binder, developed by the VIO and refined at the Semiluk Works, gives better-quality refractories than the carborundum refractories with a silica binder produced at present. (Author)

Fuels, Lubricants, and Hydraulic Fluids

Boyer, A. F., Durand, G., and Payen, P.
THE REACTIVITY OF COKES; PERFECTING OF A METHOD FOR MEASURING FOUNDRY COKES.
[1962] 28p. (7 figs. 4 tables omitted) 18 refs.
Order from SLA $2.60 62-16017

Trans. of Chimie [et] Industrie (France) 1958, v. 80 [no. 3] p. 220-233.

DESCRIPTORS: *Coke, Temperature, Density, Porosity, Chemical reactions, Cupola furnaces, Gas diffusion, Reaction kinetics, Particles, Abrasion.

Under normal utilization conditions the rate of the reaction $CO_2 + C \rightarrow 2\,CO$ is controlled by the diffusion of gases within the pores of the coke and it little depends on the organization of the carbon atoms, the specific surface of the coke and, in a general way, on its "chemical" properties. Laboratory apparatus making it possible to gasify pieces of 10 to 100 g at temperatures going up to 1500°C have been constructed. They made it possible to determine the following facts. For 20-g pieces, gasification takes place above 1000-1200°C under diffusion conditions, as in a cupola furnace; under these conditions, the relative reactivity of different cokes is no longer the same as when diffusion does not participate; partially gasified coke undergoes a very variable mechanical disintegration according to the samples. (Author)

Ivanov, V. S. and Mirzoeva, E. A.
ADDITIVES FOR INSULATING AND LUBRICATION OILS. [1962] [6]p. 1 ref. C. E. Trans. 2482; [DSIR] NLL M.6169.
Order from OTS or SLA $1.10 62-32014

Trans. of Energetik (USSR) 1961, v. 9, no. 5, p. 18-20.

DESCRIPTORS: *Lubricant additives, Oxidation, Antioxidants, Tests, Metals, Passivity, Electric insulation, *Insulating materials, Power, Electric machinery, Electrical industry.

Klyachko, L. A.
THE THEORY OF CENTRIFUGAL ATOMIZERS.
5 July 62 [14]p. 11 refs. FTD-TT-62-900.
Order from OTS or SLA $1.60 62-32682

Unedited rough draft trans. of Teploenergetika (USSR) 1962 [v. 9] no. 3, p. 34-37.

DESCRIPTORS: *Atomization, *Centrifuges, Theory, Fluid flow, Hydraulic research, Fuels, Nozzles, Liquid jets, *Fuel sprays, Sprays.

Different methods of constructing a theory of centrifugal atomizers are analyzed for the case of an ideal fluid. (Author)

Kolodtsev, Kh. I., Babii, V. I., and Kustovskii, S. P.
VTI GAS GENERATOR FOR USE IN GAS TURBINE PLANTS. [1962] [10]p. 3 refs. BM Trans. 1662.
Order from OTS or SLA $1.10 62-25121

Trans. of Teploenergetika (USSR) 1961, v. 8, no. 4, p. 44-48.
Another trans. is available from OTS or SLA $1.10 as 62-25921, CE Trans-2364 [1962] [9]p.

DESCRIPTORS: *Gas turbines, *Gas generator engines, Heating plants, *Fuels, Solids, *Solidified gases.

This paper considers a gas turbine system operating on solid fuel which has been preliminarily gasified. It gives a brief description of the design and technical features of the VTI high capacity gas generator. It describes the results of tests on the pilot plant gas generator unit used with gas turbine plants at fuel loads of up to 2,500 kg/m^2 - hr and heat liberation rates of 16×10^6 $kcal/m^3$ - hr. (Author)

Rudenko, M. G., Zaslavskii, Yu. S. and others.
SYNTHESIS AND PROPERTIES OF ARYLSTEARIC ESTERS [AND] LESSENING THE CORROSIVE ACTION OF ANTI-ABRASIVE ADDITIVES WITHOUT IMPAIRING THEIR EFFECTIVENESS. 5 Oct 62 [19]p. 29 refs. FTD-TT-62-1024.
Order from OTS or SLA $1.60 62-33626

Unedited rough draft trans. of Khimiya i Tekhnologiya Topliv i Masel (USSR) 1961 [v. 6] no. 12, p. 7-11 and 39-43.

DESCRIPTORS: *Lubricants, *Sterates, Phenyl radicals, Esters, Synthesis, Physical properties, *Oils, Additives, Abrasion, *Corrosion inhibition, *Phosphorus compounds.

Snitserov, Yu. V.
THE EFFECT OF ADDITIVES ON THE FORMATION OF DEPOSITS IN FUEL T-1 AT HIGH TEMPERATURES, tr. by Lionel Mote. [1962] [13]p. 13 refs. TRC Trans. no. 1060; [DSIR] NLL M. 4894.
Order from OTS or SLA $1.60 62-25391

Trans. of Khim[iya] i Tekhnol[ogiya] Topliv i Masel (USSR) 1961 [v. 6] no. 11, p. 55-59.

DESCRIPTORS: *Aviation fuels, Deposits, Additives, *Copper catalysts, *Antioxidants, *Amines, High temperature research.

Heating standard T-1 fuel, in the presence of an active oxidation catalyst (copper), leads to a greater formation of deposit and resinous substances than in the absence of the catalyst. The deposits have the appearance of a mass consisting of individual particles which agglomerate with increasing temperature. The deposits, obtained in the absence of the catalyst, have a "granular" structure. The addition of the amines tested, in the optimum concentration, to a fuel T-1 causes a reduction in the formation of solid, insoluble deposits. The effectiveness of this action increases with increasing radical from C_7-C_9 to C_{15}. The most effective amine was that with radical C_{15}. The oxidation products content of fuel T-1 increases in the presence of the amines tested and with increasing temperature. The anti-oxidant effectiveness of the amines is in the inverse order to that of their effectiveness on deposit formation. The addition to fuel T-1 of the amines tested causes a change in the structure, shape and dimensions of the solid, insoluble deposits, formed at high temperatures. (Author)

Leather and Textiles

Fujisaki, Yoshisato.
EFFECT OF MOLECULAR WEIGHT DISTRIBUTION. Rept. 2 of Studies on the Effects of Molecular Weight and Molecular Weight Distribution on the Spinning Property of Concentrated Polyacrylonitrile Solutions. [1962] 12p. 3 refs.
Order from SLA $1.60 62-16014

Trans. of Kobunshi Kagaku (Japan) 1961, v. 18, no. 199 p. 667-673.

DESCRIPTORS: *Synthetic fibers, *Acrylonitriles, *Molecular weight, Distribution, Physical properties, Nitric acid.

Unfractionated polyacrylonitriles were dissolved in 70% nitric acid. These solutions were extruded into a dilute nitric acid solution. After the coagulation they were scored. Relations between the stretchabilities of coagulated threads thus obtained and those of their component polymer species were investigated. The stretchability of the polymer species was measured under the same spinning condition by using the fractionated samples. The stretchability distribution curves for many unfractionated polymers were made from the molecular weight distribution curves by the use of the obtained stretchability-molecular weight relations. It was found that the maximum heat-stretchability of unfractionated polymer was given by the weight average of those of the component species. (Author)

Ignatenko, V. V.
POSSIBILITY OF A NEW METHOD OF WEFT INSERTION (O Vozmozhnosti Novogo Sposoba Prokladyvaniya Utka). Sep 62 [7]p. 4 refs. RTS 2122.
Order from OTS or SLA $1.10 62-32955

Trans. of Tekstil'naya Promyshlennost' (USSR) 1960, v. 20, no. 11, p. 32-35.

DESCRIPTORS: *Textiles, Manufacturing methods, Theory, Fibers, Dynamics.

See also 62-32952.

Makachev, N. I.
THE INERTIAL METHOD OF WEFT INSERTION (Ob Inertsionnom Sposobe Prokladyvaniya Utka). Comment of a paper "On the Possibility of a New Method of Weft Insertion", by V. V. Ignatenko. Sep 62 [4]p. RTS 2121.
Order from OTS or SLA $1.10 62-32952

Trans. of Tekstil'naya Promyshlennost' (USSR) 1961, v. 21, no. 11, p. 58-60 (original article pub. in 1960, v. 20, no. 11, p. 32-35).

DESCRIPTORS: *Textiles, Manufacturing methods, Theory, Fibers, Dynamics.

The applicability of the inertial method considered by V. V. Ignatenko (Tekstil'naya Promyshlennost' USSR 20: no. 11, 32-35, 1960; available in translation from OTS or SLA $1.10 as 62-32955) seems doubtful because it would require an increase in loom width and would involve great difficulty in yarn measurement.

(See also 62-32955)

Plastics

IMPROVEMENT IN RESINOUS COMPOSITIONS AND IN THE PROCEDURE FOR THEIR PREPARATION. [1962] 17p.
Order from OTS or SLA $1.60 62-16319

Trans. of Belgian patent 503546, by Koppers Co., n.d.

DESCRIPTORS: *Phenolic resins, *Epoxy resins, *Plastic coatings, *Adhesives, Preparation, Amines, Ion exchange resins, Formaldehydes, Phenols, Furaldehydes, Glycidal ethers, Phthalates.

Andreu, A. Catalan.
PLASTICISERS AND PLASTICISING OF HIGH POLYMERS. [1961] 31p. (3 figs. omitted) 19 refs.
Order from SLA $3.60 61-20981

Trans. of an unidentified article, n.p., n.d.

DESCRIPTORS: *Polymers, Plastics, *Plasticizers, Physical properties, Theory.

Buchner, N.
THEORY OF THE GAS PERMEABILITY OF PLASTIC FILM (A CRITICAL LITERATURE SURVEY). [1962] [11]p. 43 refs.
Available on loan from SLA 62-20455

Trans. of Kunststoffe (West Germany) 1959, v. 49, p. 401-406.

DESCRIPTORS: *Plastic films, Films, Porosity, Gases, *Permeability, Diffusion, Solubility, Temperature, Theory.

A comparison of the measured values from a large number of publications for the gas permeability of plastic films with the theoretical expressions which might explain gas permeability shows that the passage of gas in all plastic films follows a single conformity to law: the gas goes through the film material on account of a "solution diffusion." A passage of gas through micropores in the gaseous or adsorbed state can be considered to be refuted in plastics; plastic films must be regarded as pore free at the usual thicknesses. The conformities to law of the "solution diffusion" are explained and discussed. (Author)

Ermilova, G. A.
EFFECT OF THE FRACTIONAL COMPOSITION OF POLYPROPYLENE ON ITS PHYSICO-MECHANICAL PROPERTIES. 13 Mar 62 [9]p. 8 refs.
Order from OTS or SLA $1.10 62-14988

Trans. of Plasticheskie Massy (USSR) 1961, no. 12, p. 7-10.

DESCRIPTORS: *Plastic films, *Propenes, Polymers, Plasticizers, Physical properties, Mechanical properties, Elasticity, Tensile properties, Deformation, Temperature.

For polypropylene processed into films, the lowest resistance to thermomechanical action is shown by the bulk polymer structure. An increase in the content of atactic polymer obtained by polymerization or treatment of polypropylene is accompanied by a significant decrease in mechanical strength of the polymer (about 12.5%), and the breaking stretch increases from 730 to 850%. The atactic polymer in propylene acts as an unusual plasticizing agent, which increases the elasticity, stretch, and abrasion resistance of the material, but lowers its mechanical strength and rigidity. Thus, by changing the content of atactic polymer, one can obtain different types of special-purpose polypropylenes in accordance with industrial requirements. The temperature at which deformation of the material takes place, and the conditions and methods of processing have a substantial effect on the physico-mechanical properties of polypropylene. (Author)

Münzinger, Walther M.
PROGRESS IN THE FIELD OF PLASTICIZERS.
11 Nov 48, 14p. (table, refs. omitted).
Order from SLA $1.60 62-18420

Trans. of Kunststoffe (Germany) 1941, v. 31, no. 11, p. 389-395.

DESCRIPTORS: *Plasticizers, Chemical industry, Bonding, Classification.

Shevlyakov, A. S., Etlis, V. S. and others.
STEREOSPECIFIC POLYMERIZATION OF STYRENE.
[1962] [8]p. 27 refs. [DSIR] NLL M. 4988.
Order from OTS or SLA $1.10 62-25907

Trans. of Khimicheskaya Promyshlennost' (USSR) 1960, no. 5, p. 362-367.

DESCRIPTORS: *Stereochemistry, Plastics, *Styrenes, Polymerization, Production, Physical properties.

Sidorovich, A. V. and Kuvshinskii, E. V.
THERMOMECHANICAL PROPERTIES OF THE LINEAR AMORPHOUS POLYMERS POLYMETHYLMETHACRYLATE AND POLYSTYRENE, tr. by George N. Kasachkoff. 29 Nov 62 [15]p. 10 refs. [AMC] (Redstone) Trans-nr 41-62.
Order from OTS or SLA $1.60 63-13394

Trans. of [Vysokomolekulyarnye Soedineniya] (USSR) 1961, v. 3, no. 11, p. 1698-1704.

DESCRIPTORS: Polymers, *Plastic films, Mechanical properties, Temperature, *Acrylic resins, *Styrenes, Deformation, Elasticity.

A thermomechanical study of the amorphous linear polymers polymethylmethacrylate and polystyrene was carried out at low levels of tensile stress. The thermomechanical properties of these two polymers were found to be substantially similar. It was confirmed that the appearance of the thermomechanical curves substantially changes with the change of the molecular weight of the polymer. In highly molecular products the thermomechanical curves have a "plateau" and a high temperature branch. A study of the nature of the deformations, accumulated during thermomechanical tests, demonstrated that in polymethylmethacrylate and polystyrene, the deformations are of a highly elastic nature even on the steep high temperature branch. The desirability of discriminating a special state of viscous flow of linear polymers is rejected. (Author)

Wood and Paper

Bobrov, A. I. and Turbanova, A. D.
COOKING FIR WOOD PULP WITH MAGNESIUM BISULPHIDE AT RAISED TEMPERATURES. [1962] 5p.
Order from OTS or SLA $1.10 62-16075

Trans. of Bumazhnaya Promyshlennost' (USSR) 1961 [v. 36] no. 10, p. 4-5.

DESCRIPTORS: *Wood pulp, *Magnesium compounds, *Sulfides, Temperature, *Wood pulp fibers, *Cellulose, Lignin, Processing, Mechanical properties, Black liquor

The temperature of the bisulfite cooking, raised from 170 to 190 deg, does not influence the magnitude of the fiber yield of the fir wood pulp which is equal to 50.9 - 51.9% at the time when the cellulose is finished and contains 4.5 - 4.9% of lignin. It is accompanied by an increased content of alpha-cellulose (from 88 to 88.9%) and a reduced amount of pentosans (from 6.5 to 5%). It causes an insignificant decline in the indicators of the tearing length and resistance to the fracture, yet the cellulose separated at 190 deg has better resistance to fracture and puncture than the current sulfite cellulose, obtained in boiling with magnesium bases at 140 deg. (Author)

Morgan, P. W., Campbell, E. and others.
PULPY MASSES, THEIR MANUFACTURE AND USE.
21 Jan 60 [91]p. (figs. omitted).
Order from OTS or SLA $8.60 62-16344

Trans. of Belgian Patent 564, 206 by E. I. DuPont de Nemours and Co., appl. 23 Jan 58 (claims convention priority: USA, appl. filed 23 Jan 57, 30 July 57, 2 Aug 57).

DESCRIPTORS: *Paper, Production, *Polymers, *Cellulose, *Wood pulp fibers, Sheets, Moisture, Water, Particles, Synthetic fibers, Amides, Synthesis, Mechanical properties, Solutions, Precipitation, Wetting agents.

Werr, Friedrich.
THE DETERMINATION OF THE GREASE RESISTANCE OF PAPERS. [I. DESCRIPTION AND CRITICISM OF THE VARIOUS TEST METHODS]. [1962] [20]p. 35 refs.
Order from SLA $1.60 62-18542

Trans. of das Papier (West Germany) 1961, v. 15, no. 6, p. 222-229.
Other translations are available from SLA $1.60 each as 62-10349 [1961] 12p. and 62-16069 [1962] 20p.

DESCRIPTORS: *Paper, Greases, Resistance, Determination.

For abstract see Technical Translations 7: 672, 1962.

Zakharov, P. S.
TREATING AND DRYING TREES ON THE STUMP. Feb 61, 1v.
Order from CB $12.50

Trans. of mono. Primenenie Sosushchei Sily Kreii dlya Suskhi i Propitki Drevesiny, Moscow, 1959, 44p.

DESCRIPTORS: *Forestry, *Trees, Dehydration.

MATHEMATICS

Chebotarev, N. G.
NEWTON'S POLYGON AND ITS ROLE IN THE PRESENT DEVELOPMENT OF MATHEMATICS, tr. by Helen J. Chick and George H. Pimbley. [1962] 53p. 61 refs.
Order from OTS or SLA $5.60 AEC-tr-5139

Trans. of mono. Isaak N'yuton, 1643-1727: Symposium on the 300th Anniversary of His Birth", Moscow /Leningrad, 1943, p. 99-126.

DESCRIPTORS: *Number theory, *Analytic geometry, *Differential equations, Algebraic geometry, Functions, Bibliography.

Korovkin, P. P.
INEQUALITIES, tr. by H. Moss. Popular lectures in Mathematics, v. 6, 1961, 1v.
Order from PP $1.75

Trans. of mono. [Neravenstva, Moscow, 1952].

DESCRIPTORS: *Inequalities.

Koval', N. S.
SEMINAR ON TECHNICAL APPLICATIONS OF MATHEMATICAL LOGIC [MOSCOW U., OCT 55]. [1962] 4p. 9 refs.
Order from OTS or SLA $1.10 62-18271

Trans. of #Avtomatika i Telemekhanika (USSR) 1957, v. 18, no. 10, p. 950-952.

DESCRIPTORS: *Mathematical logic, Applied mathematics, *Symposia.

Smirnov, V. I.
LINEAR ALGEBRA AND GROUP THEORY, rev., adapted and ed. by R. A. Silverman. 1961, 68p.
Order from McGraw-Hill Book Co., Inc., 330 West 42d St., New York, 36, N. Y. $3.75

Trans. of unidentified Russian mono., n.p., n.d.

DESCRIPTORS: *Algebra, *Groups (Mathematics), Theory.

Vorob'ev, N. N.
FIBONACCI NUMBERS, tr. by H. Moss. Popular Lectures in Mathematics, v. 2. 1961. 1v.
Order from PP $1.75

Trans. of mono. [Chisla Fibonachchi, Moscow, 1951, 46p.].

DESCRIPTORS: *Numbers, Number theory.

Computing Devices

BULLETIN OF THE ACADEMY OF SCIENCES UKSSR, 1962, NO. 7: [SELECTED] TRANSLATIONS. 30 Nov 62 [22]p. 9 refs. JPRS: 16446.
Order from OTS or SLA $2.60 63-13316

Trans. of Akademiya Nauk URSR, Kiev. Dopovidi, 1962, no. 7, p. 863-873, 970-971, 974-975.

DESCRIPTORS: *Computers, Stabilization, Differential equations, *Matrix algebra, Analog computers, *Linear programming, Language, *Cybernetics, Automation.

Contents:
On a problem of stabilization, by V. N. Romanenko
Quasi-analogue electronic computer for solution of general problems of the mathematical programming, by G. E. Pukhov
Levels and styles of address language and the problem of programming automation, by K. L. Yushchenko
The state and the cybernetics research perspectives in the Ukraine and organization of the Cybernetics Institute of the Academy of Sciences Ukrainian SSR
Increasing scientific research work in the field of electrification and automation of production processes.

Abdrashitov, R. M., Grebennikov, N. I.
PRECISION CALCULATIONS IN COMPUTER CONSTRUCTION [MECHANICAL UNITS AND DEVICES IN MECHANICAL AND ELECTRONIC COMPUTING MACHINES]. 31 Aug 62 [303]p. 21 refs. FTD-TT-62-988; AD-284 160.
Order from OTS or SLA $19.75 62-33059

Unedited rough draft trans. of mono. Tochnostnye Raschety v Schetnom Mashinostroenii Mekhanicheskie Usly i Ustroistva Mekhanicheskikh i Elektronnykh Vychistel'nykh Mashin, Moscow, 1960, 254p.

DESCRIPTORS: *Digital computers, Computers, Construction, Electrical networks, Trigger circuits, Machine tools, Lathes, *Precision finishing, Quality control, *Statistical processes, Economics, Machine shop practice.

In the present work, we have first attempted to give a complex solution to the problems of precision production of mechanical computers. A complex solution of the problems of production quality is due to the need for solving them when developing product design and when planning the technological production and assembly, selecting the ways and means for controlling the processes, ready-made parts and products, and also when calculating the technical-economic production indexes. The contents of the present work were determined by the need for a simultaneous solution of these problems. In the short introduction we examine the principles for the application of theoretical-probability methods calculatin the accuracy in computer construction. Chapter I gives the basic hypotheses for calculating the tolerances in the dimensional networks; Chapter II gives calculations for the precision of the technological operations; Chapter III gives statistical methods for quality analysis and control; Chapter IV gives the technical-economic indexe for using the precision calculations. (Author)

Ivakhenko, O. G.
APPLICATION OF THE INVARIANCE THEORY AND COMBINED CONTROL IN THE SYNTHESIS AND ANALYSIS OF "LEARNING" SYSTEMS. 30 Mar 62 [19]p. 14 refs. FTD-TT-62-75; ASTAR 2534.
Order from OTS or SLA $1.60 62-24273

Unedited rough draft trans. of Avtomatyka (USSR) 1961, no. 5, p. 3-12.

DESCRIPTORS: *Teaching machines, Synthesis, *Memory devices, Automatic, Control, *Control systems, Feedback, Stability, Learning, *Cybernetics, Reading machines, Probability.

We systematically analyze all known systems which learn, in order to determine which among them are only capable of learning, and which can generate information i.e., engage in self-instruction. A sufficient attribute of a system capable of self-instruction is the basic (Mathematics--Computing Devices, TT, v. 9, no. 3) capability of the operation of this system; starting with zero (boundary) initial information and infinite entropy, i.e., when at t = O the values $I_0 = O$, $H_0 = \infty$. Then we show that systems capable of learning, like all other control systems, can be constructed according to either of the two basic principles: (1) uncoupled control by disturbances (external signal); and (2) feedback control by output magnitudes. Our demonstration constitutes proof of the similarity of all control systems and of the possible application of the general theory of invariance and combined control to all types of control systems, and to systems which learn. (Author)

Lukaszewicz, Leon.
ZERO-ONE DIAGRAMS; A THEORY OF FLOW-DIAGRAMS; RELAY SYSTEM FOR DIGITAL COMPUTER CONTROL (Wykresy Zero-Jedynkowe; Wykresy Operacyjne; System Sztafetowy Sterowania Maszyna Cyfrowa) tr. by Maria Rojowska. 1962, 22p. 14 refs. PL-480 Comm.
Order from OTS $0.50 61-11303

Trans. of Polska Akademia Nauk. Zaklad Aparatow Matematycznych. Prace, 1959, ser. A, no. 1, p. 11; no. 2, p. 1-11; no. 3, p. 1-11.

DESCRIPTORS: *Programming (Computers), *Digital computers, Control, Control systems, *Relay control systems, Electrical networks, Switching circuits, Sequences, Relays, Algebraic topology, Functions, Mathematical logic.

Zero-one diagrams: Methods of graphical notation of relations between zero-one sequences are presented which may be simultaneously the basis for: (a) the description of relations appearing in a two-value propositional calculus, (b) schemes of electrical networks used in digital computers, (c) flow-diagrams describing mathematical algorithms or programs for digital computers, (d) flow-diagrams describing digital computer control, being the starting point for what is called the relay control. Flow-diagrams: Notions of function, functional and operation are defined for some general classes of sets. A box having the character of a delay line is assigned to each operation. On this basis, every program defining some succession in performing certain operations, may be recorded by means of a diagram. The diagrams recall flow-diagrams described by H. M. Goldstine and J. von Neumann. Their somewhat more systematical development enables their more general use - for instance, to describe many mathematical or logical algorithms, digital computer control and so on. Relay system: A method is presented for designing an electric network controlling a digital computer by means of a physical realization of a flow-diagram. (Author)

Novik, A. M., ed.
PROBLEMS OF COMPUTER ENGINEERING: [SELECTED ARTICLES]. 3 Dec 62 [39]p. 1 ref. JPRS: 16490.
Order from OTS or SLA $3.60 63-13373

Trans. of mono. Voprosy Vychislitel'noi Tekhniki, Kiev, 1961, p. 5-22 and 133-145.

DESCRIPTORS: *Digital computers, Computers, Engineering, Synthesis, Computer logic, Memory devices, Pattern recognition, Language, Mathematical logic, Reliability, Design.

Contents:
Problems of computer engineering and computer mathematics, by V. M. Glushkov
Computer elements in perspective, by L. A. Pil'kevich
Recognition of digital symbols, by Yu. T. Mitulinskii.

Novik, D. A.
A DEVICE FOR DECODING UNEVEN BINARY CODES. 18 Sep 62 [6]p. FTD-TT-62-1122. AD-286 616
Order from OTS or SLA $1.10 62-33547

Unedited rough draft trans. of Russian patent 144, 240 (594836/26) 15 Mar 58.

DESCRIPTORS: Cryptography, *Coding, Instrumentation Electronic systems, *Data processing systems.

A device for decoding uneven binary codes is described. It comprises a weighing function generator and an electron-ray tube with a mat whose structure corresponds to the code being used. In order to decode signals coded by an uneven binary code, the scan generator of the tube ray is made in one plane as a cadence impulse counter and the scan generator of the ray in a perpendicular plane is made as a counter for the units of the code combination weighed in a key type modulator by a function characteristic for a given code. The device for resetting the readings of both counters is made in the form of an electron key which resets each output signal as it appears, and the mat of the tube is made so that each code combination corresponds to one opening whose coordinates are determined by a pair of numbers describing the combination. (Author)

Rozorenov, N. [G.].
COMPUTING DEVICES AND FOLLOW-UP SYSTEMS. 18 Sep 62 [60]p. 3 refs. FTD-TT-62-1074.
Order from OTS or SLA $5.60 62-33541

Unedited rough draft trans. of mono. Schetno-Reshayushchie Ustroistva i Sledyashchie Sistemy, Moscow, 1961, 52p.

DESCRIPTORS: *Digital computers, *Analog computers, Computers, *Potentiometers, *Transformers, Direct current, *Tachometers, Generators, *Differentiating circuits, Circuits, *Amplifiers, Voltage dividers, Voltage, Design, Operation

Contents:
Potentiometers
Rotary transformers
Devices for measuring velocity
Amplifiers in computing circuits
Pulse-type computing devices
Follow-up systems in computer devices.

Shileiko, A. V.
DIGITAL DIFFERENTIAL ANALYZERS. 4 Sep 62 [108]p. 51 refs. FTD-TT-62-989; AD-284 083.
Order from OTS or SLA $9.10 62-33060

Unedited rough draft trans. of mono. Tsifrovye Differentsial'nye Analizatory, Moscow, 1961, 87p.

DESCRIPTORS: *Digital systems, *Analog computers, *Pulse height analyzers, Modulation, Sequences, Data storage systems, Memory devices, Digital computers.

Digital differential analyzers are a new type of analog computers, distinguished by increased potential accuracy over other analog machines. Most recent models of DDA have integrator registers containing 6 to 8 decimal digits, which makes it possible to obtain solutions with 5 to 6 true decimal places. This is 2 to 3 orders of magnitude greater than the accuracy of other types of analog machines. The solution of the problem of the speed of operation of DDA requires a specific approach. As noted, as a result of each individual iteration, the value of any variable represented by delta modulation of a pulse voltage, including the variable used as the solution of the problem, can vary only by the magnitude of an elemental increment.

(Mathematics--Computing Devices, TT, v. 9, no. 3)

MECHANICS

Elizarov, D. P.
STRESSES IN THE WALLS OF STEAM PIPING DURING HEATING-UP AND OPERATION AT HIGH TEMPERATURES. [1962] [9]p. 2 refs. C.E. Trans. 2199; [DSIR] NLL M.4955.
Order from OTS or SLA $1.10 62-25888

Trans. of Teploenergetika (USSR) 1960, v. 7, no. 12, p. 19-23.

DESCRIPTORS: *Walls, Stresses, *Steam pipes, Steel tubing, Pearlite, Mechanical properties, Tensiometers, Statics, Dynamics, Temperature, Heat transfer, Thermal expansion, Tests, Boilers, Deformation.

A new method for experimental determination of mechanical stresses in the walls of steam piping, made in pearlitic steel, during the heating-up process and under operating conditions is described as well as the distribution of stresses. (Author)

Grinberg, G. A.
THE STEADY-STATE FLOW OF A CONDUCTING FLUID ALONG A RECTANGULAR TUBE, IN AN EXTERNAL MAGNETIC FIELD, WITH TWO CONDUCTING AND TWO NONCONDUCTING WALLS. 4 Apr 62 [7]p. 4 refs. FTD-TT-62-298.
Order from OTS or SLA $1.10 62-24924

Unedited rough draft trans. of Akademiya Nauk SSSR. Doklady, 1961, v. 141, no. 2, p. 330-333.

DESCRIPTORS: *Fluid flow, Conductivity, Viscosity, Magnetic fields, Equations of motion, Numerical analysis.

Kachanov, L. M.
THE APPROXIMATE SOLUTION OF STEADY-CREEP PROBLEMS. [1962] [15]p. 6 refs. C.E. Trans. 2365; [DSIR] NLL M.6326.
Order from OTS or SLA $1.60 62-25958

Trans. of Akad[emiya] Nauk SSSR. O[tdelenie] T[ekhnicheskikh] N[auk]. Izvest[iya]: Mekh[anika] i Mash[inostroenie] 1959, no. 3, p. 84-95.

DESCRIPTORS: *Creep, Numerical analysis, Deformation, Stresses, Metals, Alloys, Temperature, Nonlinear systems, Differential equations, Elasticity, Plasticity, Theory, Integrals, Integration, Algebra.

Kharlamov, S. A.
ON THE INFLUENCE OF THE FLEXIBILITY OF THE AXLE BEARINGS OF THE OUTER FRAME OF A CARDAN SUSPENSION ON THE NUTATIONAL VIBRATIONS AND DRIFT OF A GYROSCOPE. 10 Aug 62 [10]p. 4 refs. FTD-TT-62-1118; AD-284 084.
Order from OTS or SLA $1.10 62-33063

Unedited rough draft trans. of Akademiya Nauk SSSR. Doklady, 1962, v. 142, no. 5, p. 1054-1057.

DESCRIPTORS: *Gyroscopes, Vibration, Drift, Mathematical analysis.

Ratner, S. I.
FAILURE DUE TO REPEATED LOADING. Oct 61 [7]p. (figs. omitted) 2 refs. [DSIR] NLL M. 3658.
Order from OTS or SLA $1.10 62-25297

Trans. of Akad[emiya] Nauk SSSR. Dokl[ady] 1956, v. 106, no. 2, p. 246-249.

DESCRIPTORS: *Loading, *Failure (Mechanics), Fracture (Mechanics), Steel, Aluminum alloys, Stresses, Tensile properties, Rupture, Fatigue (Mechanics), *Load distribution, Dynamics.

In a general case two processes can occur simultaneously in material under the influence of repeated loads: (a) reduction of dynamic breaking strength and (b) increase in resistance to plastic deformation. The principal factor determining the laws of fatigue rupture is dynamic breaking strength and its decrease in time with increasing number of load cycles. (Author)

Sveshnikov, A. A.
THE APPLICATION OF PROBABILITY METHODS TO THE SOLUTION OF CERTAIN NONLINEAR PROBLEM IN THE APPLIED THEORY OF GYROSCOPES. 2 Aug 6 [14]p. 3 refs. FTD-TT-62-1034; AD-284 120.
Order from OTS or SLA $1.60 62-32945

Unedited rough draft trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Priborostroenie (USSR) 1961, v. 4, no. 4, p. 39-47.

DESCRIPTORS: *Probability, *Nonlinear systems, *Gyroscopes, *Functions, Theory, Integrals, Control systems, Statistical processes, Polynomials, Algebra, Functional analysis.

A method of investigating dynamic systems containing essentially nonlinear elements is considered. The method is based on the use of improper integrals to obtain an explicit expression for the nonlinear functions. The specific example considered in this article shows that in certain cases the application of the method of statistical linearization to the study of nonlinear systems can actually lead to qualitatively incorrect results. (Author)

Yantovskii, E. I.
A ONE-DIMENSIONAL FLOW OF A CONDUCTING GAS WITH A CONSTANT VELOCITY IN A TRAVELLING MAGNETIC FIELD. 18 May 61 [5]p. 1 ref. FTD-TT-62-331.
Order from OTS or SLA $1.10 62-25833

Unedited rough draft trans. of Akademiya Nauk SSSR. O[tdelenie] T[ekhnicheskikh] N[auk]. Izvestiya: Mekhanika i Mashinostroenie, 1960, no. 4, p. 166-167.

DESCRIPTORS: *Gas flow, Compressible flow, Electrical conductance, Velocity, *Magnetic fields, Motion, Energy, Entropy, Reynolds number.

We examine the particular case of a flow of an inviscid compressible gas having a constant electric conductivity σ. (Author)

Zimin, E. P.
THE EFFECT OF A MAGNETIC FIELD ON THE FLOW OF A CONDUCTING GAS IN A PLANE TUBE IN THE PRESENCE OF HEAT TRANSFER THROUGH THE WALLS. 11 May 62 [8]p. 1 ref. FTD-TT-62-333.
Order from OTS or SLA $1.10 62-25834

Unedited rough draft trans. of Akademiya Nauk SSSR. O[tdelenie] T[ekhnicheskikh] N[auk]. Izvestiya: Mekhanika i Mashinostroenie, 1961, no. 2, p. 117-119.

DESCRIPTORS: *Gas flow, Compressible flow, Electrical conductance, *Magnetic fields, Magnetic effects, Heat transfer, Dynamics.

We analyzed a quasi-one-dimensional stationary flow of an electrically conducting compressible gas in a tube, normal to the walls of which is applied a homogeneous magnetic field, in the presence of a heat flux through the wall. (Author)

Aerodynamics and Pneumatics

Izakov, M. N. and Perov, S. P.
INVESTIGATION OF HEAT-TRANSFER IN THE CASE OF A CYLINDER IN A STREAM OF EXPANDED GAS. 11 Sep 62 [22]p. FTD-TT-62-1091.
Order from OTS or SLA $2.60 62-33625

Unedited rough draft trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. Izvestiya: Mekhanika i Mashinostroenie, 1962, no. 1, p. 42-51.

DESCRIPTORS: *Cylindrical bodies, Bodies of revolution, *Re-entry vehicles, *Aerodynamic heating, Re-entry aerodynamics, Heat transfer, Gas flow, Convection.

Measurements are made of the recovery factors and heat-transfer coefficients for a cylinder (positioned across a stream) over a wide range of Reynolds numbers, in order to bring out the laws governing the changes in these quantities in all flow regions ranging from free-molecule to continuum (the flow of a continuous medium). To this end tungsten wires of various diameters were subjected to testing in a wind tunnel of variable density. (Author)

Katskova, O. N. and Kraiko, A. N.
CALCULATION OF THE AXISYMMETRIC ISENTROPIC FLOW OF A REAL GAS. 29 Aug 62 [15]p. 4 refs. FTD-TT-62-1057. AD-286 579.
Order from OTS or SLA $1.60 62-33628

Unedited rough draft trans. of Zhurnal Vychislitel'noi Matematiki i Matematicheskoi Fiziki (USSR) 1962, v. 2, no. 1, p. 125-132.

DESCRIPTORS: *Gas flow, *Axially symmetric flow, Supersonics, *Supersonic nozzles, *Equations of motion, Thermodynamics, Digital computers, Scheduling.

Katskova, O. N., Naumova, I. N. and others.
EXPERIENCE IN THE CALCULATION OF PLANE AN AXIALLY SYMETRIC SUPERSONIC GAS FLOWS BY THE METHOD OF CHARACTERISTICS. 12 Sep 62 [60]p. 11 refs. FTD-TT-62-205. AD-286 581
Order from OTS or SLA $5.60 62-33646

Unedited rough draft trans. of mono. Opyt Rascheta Ploskikh i Osesimetrichnykh Sverkhzvukovykh Techenii Gaza Metodom Kharakteristik, Moscow, 1961, 57p.

DESCRIPTORS: Supersonics, *Supersonic flow, Gas flow, *Axially symmetric flow, Numerical methods and procedures, Partial differential equations, Laval nozzles, Nozzles, Bodies of revolution.

Kozlov, L. F.
THE CALCULATION OF THE TRANSITION FROM A LAMINAR BOUNDARY LAYER TO A TURBULENT LAYER UNDER THE ACTION OF THE TURBULENCE OF AN INCIDENT FLOW. 15 June 62 [9]p. 13 refs. FTD-TT-62-856; AD-283 893.
Order from OTS or SLA $1.10 62-32982

Unedited rough draft trans. of Inzhenerno-Fizicheskii Zhurnal (USSR) 1962, v. 5, no. 3, p. 103-106.

DESCRIPTORS: Boundary layer, *Laminar boundary layer, Turbulence, *Turbulent boundary layer, Turbulent flow, Reynolds number, Numerical analysis.

Kulonen, L. A.
THE FLOW OF DISSOCIATING NITROGEN BETWEEN TWO PARALLEL PLATES. 28 Aug 62 [14]p. 10 refs. FTD-TT-62-1145. AD-286 586.
Order from OTS or SLA $1.60 62-33621

Unedited rough draft trans. of Leningrad U. Vestnik (USSR) 1962 [v. 17] no. 1, Seriya Matematiki Mekhanika i Astronomii, no. 1, p. 116-123.

DESCRIPTORS: *Nitrogen, *Dissociation, *Gas flow, *Aerodynamic configurations, Sheets, Aerodynamics, Thermodynamics, Transport properties, Chemical equilibrium, Friction, Catalysis, Diffusion, Thermal conductivity.

In all cases of the chemical state of the flow, where dissociation is taken into account in some manner or other, friction is higher than when dissociation is not considered. The catalytic activity of the walls has a greater influence on friction, temperature distribution, and the degree of dissociation across the flow, than does its chemical state. In the case of catalytic walls, the chemical state of the flow has practically no effect on friction; however, the flow of heat to the "cold" wall and the distribution of the degree of dissociation across the flow depend quite strongly on the chemical state of the flow. Taking dissociation into account has little effect on friction and heat flow to the "cold" wall, if diffusion thermal conductivity is not taken into consideration. (Author)

Legendre, R.
SEPARATION OF THREE-DIMENSIONAL LAMINAR FLOW (Séparation de l'Écoulement Laminaire Tridimensionnel) tr. by D. A. Sinclair. 1961, 17p. 9 refs. NRCC Technical Trans. 981.
Order from NRCC $1.00 NRCC C-4135

Trans. of la Recherche Aéronautique (France) 1956, no. 54, p. 3-8.

DESCRIPTORS: *Fluid flow, *Laminar boundary layer, Boundary layer, Separation, Fluid dynamics, Viscosity, Ellipsoids, Aerodynamics, Shock waves.

Leont'ev, A. I., Oblivin, A. N., and Romanenko, P. N.
AN INVESTIGATION OF RESISTANCE AND HEAT TRANSFER DURING TURBULENT AIRFLOW IN AXIALLY SYMMETRIC CHANNELS WITH A LONGITUDINAL PRESSURE GRADIENT. 16 Aug 62 [20]p. 17 refs. FTD-TT-62-1044; AD-284 086.
Order from OTS or SLA $1.60 62-33407

Unedited rough draft trans. of [Zhurnal] Prikladn[oi] Mekhanik[i] i Tekhnichesk[oi] Fizik[i] (USSR) 1961, no. 5, p. 16-25.
Another trans. is available from ICE in v. 2, no. 2, $15.00/year.

DESCRIPTORS: *Turbulent boundary layer, *Heat transfer, *Diffusers, *Nozzles, Experimental data, Gas flow.

Results are given of experimental studies on the characteristics of the turbulent boundary layer with the flow of heated air in axially symmetric diffuser and effuser channels with cooled walls. The dependences of the shape parameters, which characterize the shape of the velocity and temperature profiles and which determine the law of friction and heat transfer, on the longitudinal pressure gradient are determined. Results are also given of the distribution of shearing stress and specific heat flow, and also the coefficients of turbulent exchange of momentum and heat across the turbulent boundary layer with a gas flow gradient. (Author)

Marenov, A. E.
DETERMINATION OF THE HEAT-TRANSFER COEFFICIENTS IN SUPERSONIC TUBE FLOWS OF A RAREFIED GAS. 7 Sep 62 [15]p. 8 refs. FTD-62-974.
Order from OTS or SLA $1.60 62-33623

Unedited rough draft trans. of Inzhenernyi Sbornik (USSR) 1960, v. 30, p. 139-148.

DESCRIPTORS: Supersonics, *Supersonic flow, Gas flow, *Superaerodynamics, *Heat transfer, Heat exchangers, Cylindrical bodies, Differential equations.

This article concerns an experimental investigation of heat-transfer coefficients under conditions of a supersonic flow of rarefied air along tubes of constant cross sections. The experiments were carried out in the

slip-flow region with a change in the parameter of rarefaction within the limits of $0.13 \leq \frac{M}{\sqrt{Re_d}} \leq 2$.

Based on the M numbers the interval from 3.5 to 5.5 is encompassed with rarefaction of the working flow of air within the limits of 0.02 to 2 mm. The parameters Re_d encompassed the range from 10 to 850. A formula for calculating the heat-transfer coefficients within the investigated parameter was recommended on the basis of the experimental data. (Author)

Motulevich, V. P.
A COMPLETE SYSTEM OF EQUATIONS FOR A LAMINAR BOUNDARY LAYER AND THE BOUNDARY CONDITIONS IN THE PRESENCE OF SOURCES OF MATTER AND ENERGY IN THE FLOW AND ON THE SURFACE OF A SOLID. 13 Feb 62 [12]p. 8 refs. FTD-TT-62-23.
Order from OTS or SLA $1.60 62-23672

Unedited rough draft trans. of Inzhenerno-Fizicheskii Zhurnal (USSR) 1961, v. 4, no. 10, p. 44-51.

DESCRIPTORS: Solids, Surfaces, *Gas flow, Dynamics, Molecules, Kinetic theory, Diffusion, Physical chemistry, *Laminar boundary layer, Boundary layer, Energy, *Differential equations, Heat transfer.

This work cites a complete system of differential equations for a boundary layer and the boundary conditions taking into account all factors following from the molecular-kinetic theory of matter. The relationships obtained take into account the chemical and phase transformations taking place both in the gas flow and on the surface of a solid through which an arbitrary gas is delivered through the pores. (Author)

Shugaev, F. V.
SUPERSONIC FLOW PAST AXIALLY SYMMETRIC BLUNT BODIES WITH A DETACHED SHOCK WAVE. 11 May 62 [12]p. 7 refs. FTD-TT-62-351.
Order from OTS or SLA $1.60 62-25741

Unedited rough draft trans. of Moscow U. Vestnik. [Seriya 3: Fizika, Astronomiya] (USSR) 1961 [v. 16] no. 2, p. 46-53.

DESCRIPTORS: *Blunt bodies, Supersonics, *Supersonic flow, Gas flow, Dynamics, *Shock waves, Numerical analysis, Differential equations, Aerodynamic configurations.

We examine the case of flow past a body with an angular point on the profile which determines the position of the sound point. (Author)

Hydrodynamics, Hydraulics, and Hydrostatics

RESEARCH ON VIBRATIONS AND HEAD LOSSES INSIDE TUBE BUNDLES. Quarterly rept. no. 2, Jan-Mar 61, on [Contract 025-60-10 RDF]. [1962] 5p.
Order from OTS or SLA $1.10 EURAEC-106

Trans. of a rept. from Société Grenobloise d'Étude et d'Applications Hydrauliques (France) 24 Apr 61.

DESCRIPTORS: *Hydraulic models, Cylindrical bodies, Vibration, Deflection, *Hydraulic research, Tests.

(See also EURAEC-177)

RESEARCH ON VIBRATIONS AND HEAD LOSSES INSIDE TUBE BUNDLES. Quarterly rept. no. 4, July-Sep 61, on Contract 025-60-10 RDF. [1962] 15p.
Order from OTS or SLA $1.60 EURAEC-177

Trans. of a rept. from Société Grenobloise d'Étude et d'Applications Hydrauliques (France) Oct 61.

DESCRIPTORS: *Hydraulic models, Cylindrical bodies, Vibration, Deflection, *Hydraulic research, Tests.

(See also EURAEC-159)

RESEARCH [ON] VIBRATIONS AND LOAD LOSSES IN TUBULAR CLUSTERS. Quarterly rept. no. 3 (second quarter 1961) on Contract 025.60.10 RDF. [1962] 9p.
Order from OTS or SLA $1.10 EURAEC-159

Trans. of a rept. from Société Grenobloise d'Étude et d'Applications Hydrauliques (France) 25 July 61.

DESCRIPTORS: *Hydraulic models, Cylindrical bodies, Vibration, Load distribution, Vortices, *Hydraulic research.

(See also EURAEC-288)

[RESEARCH ON] VIBRATIONS AND LOAD LOSSES IN TUBULAR CLUSTERS. Special rept. no. 3 (Nov-Dec 61). [1962] [43]p.
Order from OTS or SLA $4.60 EURAEC-288

Trans. of a rept. from Société Grenobloise d'Étude et d'Applications Hydraliques (France) Mar 62.

DESCRIPTORS: *Hydraulic models, Cylindrical bodies, Vibration, Load distribution, Vortices, *Hydraulic research.

(See also EURAEC-159)

Khokhlov, V. A. and Dvoretskii, V. M.
A METHOD OF ANALYZING THE DYNAMICS OF SERVOSYSTEMS WITH A HYDRAULIC SERVOMECHANISM [AND] A MINIATURE HYDRAULIC LEAD UNIT OF COMPENSATION TYPE. 14 Aug 62 [20]p. 7 refs. FTD-TT-62-986; AD-284 077.
Order from OTS or SLA $1.60 62-32944

Unedited rough draft trans. of mono. Voprosy Pnevmoi Gidroavtomatiki (Problems of Pneumatic and Hydraulic Automation) Moscow, 1960, p. 24-30 and 88-92.

DESCRIPTORS: *Hydraulic systems, *Pneumatic systems, Servomechanisms, Condensation, Analysis, Dynamics.

Leshchenko, V. A.
TO THE QUESTION OF THE FLOW OF MINERAL OIL THROUGH THE WORKING SLOT OF THE THROTTLING SPOOL-VALVE OF A HYDRAULIC SERVO SYSTEM. [1962] 16p. 4 refs. MDF-L/100.
Order from OTS or SLA $1.60 62-23097

Trans. of Stanki i Instrument (USSR) [v. 23] no. 3, p. 22-27.

DESCRIPTORS: *Servo systems, *Hydraulic servomechanisms, *Hydraulic valves, Hydraulic oils, *Mineral oils, Fluid flow.

Investigations reveal the physical meaning of the variation of the law of viscous fluid flow in the small opening zone of a throttling spool-valve slot when the width of the slot through section varies as a result of the variation in the fluid motion region. Completely reliable operation of a hydraulic servosystem with throttling spool-valve control is impossible without a definite oscillation region even with very careful oil filtration, if the throttling spool-valve operation occurs for slot widths less than 0.05 mm. Although the established laws do not take oil viscosity into account, however, by using throttling spool-valves operating in the turbulent region, the influence of the oil viscosity on the servosystem characteristics can be brought to a minimum. The dependence obtained can be used as initial data to compute hydraulic servosystems. (Author)

METALLURGY

PHYSICS OF METALS AND METAL SCIENCE, 1961, VOL. 12, NO. 1 [SELECTED ARTICLES]. 21 June 62 [50]p. 10 refs. FTD-TT-62-512; AD-283 894.
Order from OTS or SLA $5.60 62-32992

Unedited rough draft trans. of #Fizika Metallov i Metallovedenie (USSR) 1961, v. 12, no. 1, p. 78-96. ##Another trans. of p. 84-90 is available from OTS or SLA $1.60 as 62-16181 [1962] 11p.

DESCRIPTORS: Metals, Physics, *Iron alloys, *Nickel alloys, Microstructure, *Steel, Carbon alloys, High temperature research, High pressure research, *Austenite, Grains (Metallurgy), Surface tension.

Contents:
Analysis of the structure of irreversible alloys of the system Fe-Ni, by V. I. Gorbunov
##Phase and structural changes in carbon steel under pulsed effect of high temperatures and pressures, by B. D. Grozin and S. B. Nizhnik
Measurement of surface tension in austenite grain boundaries, by K. Mazanets and E. Kamenskaya.

PROBLEMS OF POWDER METALLURGY AND THE STRENGTH OF MATERIALS, 1959, VOL. 7: SELECTED ARTICLES. 10 Sep 62 [55]p. 42 refs. FTD-TT-62-506. AD-286 595
Order from OTS or SLA $5.60 62-33622

Unedited rough draft trans. of Voprosy Poroshkovoi Metallurgii i Prochnosti Materialov (USSR) 1959, v. 7, p. 33-56 and 105-119.

DESCRIPTORS: *Powder metallurgy, Materials, Tensile properties, *Alloys, Elasticity, *Adhesives, Surface properties, *Electron microscopy, Fracture (Mechanics), Powder metals, *Iron.

Contents:
Research on the modulus of elasticity of alloys, by P. I. Mel'nichuk and I. N. Frantsevich
The influence of interphase surface on wettability, by Yu. V. Naidich
Electron-microscope investigation of break surfaces, by A. N. Pilyankevich
A study of the influence of technological factors on the pressability of iron powders, by I. M. Fedorchenko and N. A. Filatova.

Bakulin, N. I.
ROLLING IRON-NICKEL POWDERS INTO TAPE (Prokatka Zhelezonikelevykh Poroshkov v Lenty). May 61 [19]p. (foreign text included) 3 refs. [DSIR] NLL M. 3383.
Order from OTS or SLA $1.60 62-25651

Trans. of Tsentral'[nyi] Nauch[no]-Issled[ovatel'skii] Inst[itut] Chernoi Met[allurgii]. [Institut Stali]. [Sbornik Trudov] 1960, v. 23, p. 23-33.
Another trans. is available from HB $7.50 as HB-5138, Nov 61, 2500 words.

DESCRIPTORS: *Powders, *Iron, *Nickel, Magnetism.

Bekturšunov, S. S., Yavoiskii, V. I. and others.
THE BEHAVIOR OF HYDROGEN DURING THE ELECTROSLAG HEATING AND TOPPING-UP OF INGOTS. Jan 62 [13]p. (figs. omitted) 13 refs. [DSIR] NLL M. 3642.
Order from OTS or SLA $1.60 62-25311

Trans. of Izvest[iya] Vys[shikh] Ucheb[nykh] Zaved[enii]. Chernaya Met[allurgiya] (USSR) 1961, no. 9, p. 44-53.

DESCRIPTORS: *Castings, *Heating, *Slags, *Hydrogen, Metals, Thermal diffusion, Gases, Bubbles, Liquid metals, Electrochemistry, Transport properties, Electrodes, Anodes.

Electroslag heating or topping-up of the head portion of ingots result in a migration of hydrogen from metal into the slag bath, which brings about some decrease in the concentration of hydrogen throughout the whole volume of the ingots and, in particular, in their head portion. The migration of hydrogen from metal into the slag bath is not due solely to the Perrin-Tochinskii effect, but also to the electrolytic transport of OH^{--} ions and their discharge on the electrodes during the half cycle in which the electrodes act as anodes. (Author)

Capitaine, H.
OPERATING EXPERIENCE WITH A NEW TYPE OF LOW FREQUENCY INDUCTION FURNACE FOR LIGHT METALS. [1962] 5p. (figs. omitted).
Order from SLA $1.10 62-18488

Trans. of reprint from Aluminum (Germany) 1942 [v. 24, no. 2] p. 69-71.

DESCRIPTORS: Furnaces, *Electric furnaces, Operation, *Induction heating, Low frequency, Smelting, *Aluminum alloys.

Cech, B.
ON THE PROCESSES OF SINTERING CARBIDES BY LIQUID PHASE. Oct 59 [8]p. 9 refs. Trans. CRL/T. 233 [DSIR LLU] M 1551.
Order from OTS or SLA $1.10 60-23015

Trans. of Hutnicke Listy (Czechoslovakia) 1956, v. 11, no. 7, p. 419-424.

DESCRIPTORS: *Powder metallurgy, Liquid metals, Sintering, *Carbides, Chromium alloys, Nickel alloys, Tungsten alloys, Cobalt alloys, X-ray diffraction analysis.

Drits. M. E., Rokhlin, L. L., and Sviderskaya, Z. A.
INFLUENCE OF COLD DEFORMATION ON THE PROPERTIES OF ALLOYS OF THE Al-Mg2Si SYSTEM IN THE ARTIFICIALLY AGED STATE, tr. by S. Klemantaski. [1962] [10]p. 8 refs. FRI Trans. no. 168; [DSIR] NLL M. 4964.
Order from OTS or SLA $1.10 62-25891

Trans. of [Akad]emiya] Nauk SSSR. Otd[elenie] Tekhn[icheskikh Nauk]. Izvest[iya]: Met[allurgiya] i Toplivo, 1959, no. 5, p. 132-135.

DESCRIPTORS: Alloys, *Aluminum alloys, *Magnesium alloys, *Silicon alloys, *Deformation, Aging, Intermetallic compounds, Hardening, Mechanical properties, Temperature, Heat treatment.

Eisenkolb, F.
METHOD FOR DETERMINING THE ADAPTABILITY OF LUBRICATING GREASES IN DRAWING METALS. 29 May 50, 3p. (figs. tables omitted) 1 ref.
Order from SLA $1.10 62-18375

Trans. of Archiv für Metallkunde (Germany) 1949 [v. 3, no. 8] p. 287-288.

DESCRIPTORS: *Metals, Drawing (Machine processing), Greases, Lubricants, Test equipment.

Geminov, N. N.
USE OF TEMPERATURE AND PARAMETRIC DEPENDENCES OF LONG-TERM STRENGTH, tr. by M. McCarthy. 1961 [7]p. 10 refs. DEG Inf. Ser. 214(C).
Order from OTS or SLA $1.10 62-25398

Trans. of #Metallovedenie i [Termicheskaya] Obrabotka Metallov (USSR) 1959, no. 9, p. 19-22.
Other translations are available from LC or SLA mi$2.70, ph$4.80 in 61-19388, MCL-468, 31 Oct 60 [23]p. and from HB $2.00 as HB-4976, Apr/May 61.

DESCRIPTORS: *Metals, Heat treatment, Temperature, Mechanical properties, Creep.

The parametric dependences of Larson-Miller and Manson-Haferd are in principle more correct than the dependences of Manson-Succop and Graham-Walles. But the lack of constancy of the coefficients requires very great care when using these dependences for transition from one stress to another. (10) The temperature dependences lg t, 1/T or lg t, T are linear for a great duration of the periods of service and may be used fairly confidently with changed stress, for extrapolation to lower temperatures. The temperature dependences lg t, T and lg t, 1/T are practically identical (with relative change of temperature of experiment about 10%); but the dependence of the type t = f(1/T) is determined on a more physical basis and can therefore be recommended for practical use. (Author)

Gertsriken, S. D. and Novikov, N. N.
THE RELATION BETWEEN DENSITY OF DISLOCATIONS, THERMO-E. M. F. AND HARDNESS. Oct 61 [8]p. (figs. 3 refs. omitted) 7 refs. [DSIR] NLL M. 3636
Order from OTS or SLA $1.10 62-25295

Trans. of Issled[ovaniya] po Zharoproch[nym] Splavam (USSR) 1960, v. 6, p. 105-111.

DESCRIPTORS: *Dislocations, *Density, *Hardness, Metals, Crystals, Lattices, Deformation, Annealing, Temperature, Galvanometers, Measurement, Nickel, Copper, Silver.

The generation of a thermo-e. m. f. in a strained/unstrained metal pair is due to the appearance of crystal-lattice defects, mainly vacancies and dislocations, in the specimen during its deformation. An expression has been obtained, relating the value of density of dislocations with Brinell hardness. The values of density of dislocations, obtained from this expression, differ by a factor of several hundred percent from the values obtained from dilatometric measurements, which may be regarded as satisfactory in an assessment of the density of dislocations. (Author)

Gridnev, V. N., Trefilov, V. I., and Minakov, V. N.
MARTENSITIC TRANSFORMATIONS IN THE TITANIUM-ZIRCONIUM SYSTEM. [1962] [5]p. 8 refs. C. E. Trans. 2242; [DSIR] NLL M. 4885.
Order from OTS or SLA $1.10 62-25385

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1960, v. 134, no. 6, p. 1334-1336.
Another trans. is available from FRI as FRI Trans-147 [1961].

DESCRIPTORS: *Titanium alloys, *Zirconium alloys, *Phase transitions, *Martensite.

Grishaev, I. O., Terekhov, B. A. and others.
THE TITANIUM PUMP (Titanovii Nasos). June 62 [8]p. 5 refs. RTS 2060.
Order from OTS or SLA $1.10 62-32475

Trans. of Ukrayins'kyi Fizichnyi Zhurnal (USSR) 1959, v. 4, no. 6, p. 750-753.

DESCRIPTORS: *Vacuum pumps, Vacuum systems, *Pumps, Design, Gases, Absorption, Adsorption, *Titanium compounds, *Iodides, *Nitrides, *Oxides, *Tungsten, *Molybdenum.

Titanium pumps are described that can be installed with success in high vacuum systems. These pumps can draw vacuums of over 10^{-7} torr in well degassed vacuum systems.

Köster, W.
ELASTICITY MODULUS OF PURE METALS AS A FUNCTION OF THE TEMPERATURE. 18 Feb 49, 10p. (figs. tables, refs. omitted).
Order from SLA $1.10 62-18402

Trans. of Z[ei]ts[chrift] f[ür] Metallkunde (West Germany) 1948 [v. 39, no. 1] p. 1-9.

DESCRIPTORS: Temperature, *Metals, *Elasticity, Melting, Measurement, Vibration mechanisms.

The modulus of elasticity and its temperature dependence were measured for 32 very pure metals from -180° up to the melting point or up to about 1000° with the aid of the determination of the natural frequency of transversely vibrating bars.

Köster, W.
ON A SPECIAL PHENOMENON IN THE TEMPERATURE COURSE OF THE MODULUS OF ELASTICITY AND DAMPING OF METALS SUCH AS Cu, Ag, Al AND Mg. 3 Mar 49, 5p. (figs. tables refs. omitted).
Order from SLA $1.10 62-18403

Trans. of Zeits[chrift] f[ür] Metallkunde (West Germany) 1948, v. 39 [no. 1] p. 9-12.

DESCRIPTORS: *Magnesium, *Aluminum, *Silver, *Copper, *Damping, *Elasticity, Temperature.

The temperature dependence of the modulus of elasticity and the damping of Cu, Ag, Al and Mg were determined. These four metals show, over an extensive temperature range, an unexpected lowering of the modulus of elasticity and an increase of damping. The height at which the bulge of the curve occurs depends on the degree of purity of the metals. The phenomenon is therefore due to a material characteristic. By deoxidation or by the addition of deoxidizing elements, the unusual course of the two characteristics is eliminated in Cu and Ag.)On the basis of well known concepts with respect to damping, the phenomenon is attributable to the diffusion of dissolved foreign atoms which occurs under the influence of mechanical stress. Oxygen is considered to have a considerable effect on their occurrence. (Author)

Kozubovs'kyi, S. F.
AUTOMATION OF A SYSTEM OF SPEED MEASUREMENT FOR HOT ROLLED STRIPS BY A CORRELATION METHOD. [1962] [11]p. 8 refs. [DSIR] NLL M. 4990.
Order from OTS or SLA $1.60 62-25909

Trans. of Avtomatyka (USSR) 1961, no. 3, p. 64-[73]. Other translations are available from BISI £4 as BISI-2834, June 62 and from OTS or SLA $4.60 in 62-15938, JPRS-12485, 14 Feb 62 [46]p.

DESCRIPTORS: *Automation, *Rolling mills, Correlation techniques, Measurement, *Steel.

The author considers an optimalizing system for automation of the speed measurement process for hot rolled strips using correlation techniques. Two variable time-delay circuits are presented, one employing valves, the other based on reactors with magnetization. It is shown that a differential circuit (based on subtraction) may be used as well as a correlation circuit (based on multiplication). It is also possible to design an adaptive system with a second optimalizing control loop using the second harmonic of the modulating signal. Linear dynamic equations are derived. The dynamics and stability of the system containing the correlator are investigated. Transients in the system are analysed for the case of an instantaneous change in the metal strip speed under measurement. (Author)

Lipin, B. V. and Kalganova, O. P.
INVESTIGATION OF THE PROCESS OF ANODIC DISSOLUTION OF CRUDE NICKEL. Dec 61 [12]p. (figs. omitted) 6 refs. [DSIR] NLL M. 3646.
Order from OTS or SLA $1.60 62-25314

Trans. of Izvest[iya] Vys[shikh] Ucheb[nykh] Zaved[enii]. Tsvetnaya Met[allurgiya] (USSR) 1961, v. 4, no. 5, p. 81-89.

DESCRIPTORS: Copper, *Nickel, Ores, *Anodes, Impurities, Chemical analysis, Cooling, Melting, Electrochemistry, Deoxidation, Metals, Porosity, Microstructure, Refineries.

The optimum anode composition of crude nickel should contain impurities in amounts not exceeding: copper 4-4.5%, sulphur 0.5-0.8%, carbon 0.2%, silicon 0.1% and oxygen 0.1-0.15%. Anodes should be cooled rapidly in the following manner: after pouring into the mould, the metal is allowed to cool slowly for 5 minutes, after which water spraying of the whole surface is employed. The final conditions of melting should be such as to produce slightly oxidized metal with a minimum carbon content, without the use of deoxidizers. By employing the recommended melting conditions and metal composition, porous anodes are produced, as a result of which all the characteristics of electrochemical dissolution are improved. (Author)

Lozovskaya, V. F., Pashkov, P. O., and Serebryakov, A. V.
CONCERNING THE SPEED OF GROWTH OF CRACKS DURING THE PLASTIC FAILURE OF METALS (O Skorosti Rosta Treshchin pri Plasticheskom Razrushenii Metallov). [1962] [28]p. (foreign text included) 6 refs.
Order from OTS or SLA $2.60 62-18101

Trans. of [Zhurnal] P[rikladnoi] M[ekhaniki i] T[ekhnicheskoi] F[iziki] (USSR) 1960, no. 1, p. 103-109

DESCRIPTORS: *Metals, *Fracture (Mechanics), Plasticity, Creep, Deformation, *Failure (Mechanics), Temperature.

Melchior, P.
MODULUS OF ELASTICITY AND YIELD POINT OF COPPER AND COPPER ALLOY SPRING SHEET. [1962] 6p. (figs. formulae omitted).
Order from SLA $1.10 62-18426

Trans. of Metall (West Germany) 1954 [v. 8, no. 21/22] p. 850-852.

DESCRIPTORS: Sheets, *Copper alloys, *Copper, *Stresses, Plasticity, Deformation, *Elasticity, Wire.

Both in the case of copper and copper alloys (except brass), the elastic modulus known usually only as a constant value has proved to be strongly dependent on the breaking strength, or the degree of cold work. This relationship depends on the preferred crystal directions; yet these directions have not been closely studied. In the mono crystal the elastic modulus is known to be strongly dependent on direction. If the differential quotient dK_{bF}/dK_2 is set up, then this has a maximum in the case of bronze spring at 2.25 in the longitudinal direction, and 1.4 in the transverse direction. With pure copper the corresponding values are 1.6 and 1.5; with brass, only 0.85 for both directions. (Author)

Oding, I. A. and Fridman, Z. G.
RAISING THE CREEP STRENGTH OF METALLIC ALLOYS BY THE METHOD OF COMBINED MECHANICAL AND THERMAL TREATMENT. Jan 62 [6]p. (9 refs. figs. omitted) 3 refs. [DSIR] NLL M.3640.
Order from OTS or SLA $1.10 62-25309

Trans. of Akad[emiya] Nauk SSSR. Otdel[enie] Tekhn[icheskikh] Nauk. Izvest[iya]: Metall[urgiya i] Topl[ivo] 1961, no. 5, p. 75-77.

DESCRIPTORS: *Nickel alloys, *Chromium alloys, *Creep, Resistance, Dislocations, Plasticity, Deformation, Heat treatment, Stresses, Rupture, Temperature.

A combination of prior hot plastic deformation with subsequent relaxation of metal at that temperature increases the life of metal substantially. Experiments with a Ni-Cr-base alloy have shown that there exist some optimum values of strain and temperature, which result in the greatest improvement in the stress-rupture properties of the alloy (30 to 40 fold increase of life). The observed effect of increased creep-resistance may be attributed to the polygonization brought about by the prior mechanico-thermal treatment and to the formation of Cottrell clouds around the dislocations. (Author)

Osipov, K. A. and Miroshkina, E. M.
INVESTIGATION OF ALLOYS OF THE SYSTEM NICKEL-CHROMIUM BY HOT HARDNESS TESTS. Dec 61 [6]p. (figs. omitted) 4 refs. [DSIR] NLL M.3649.
Order from OTS or SLA $1.10 62-25304

Trans. of [Akademiya Nauk SSSR]. Inst[itut] Met[allurgii]. Trudy, 1958, no. 3, p. 160-164.

DESCRIPTORS: *Nickel alloys, *Chromium alloys, *Hardness, High temperature research, Deformation, Resistance, Creep, Microstructure, X-ray diffraction analysis, Crystals, Lattices.

In short-time tests in the temperature range 25-1100°C, the greatest resistance to plastic deformation is shown by chromium-nickel alloys with higher chromium contents. At high temperatures and longer test durations, it is observed that the rate of creep of the alloys increases with increasing chromium content. At high temperatures, there is no direct relationship between the effect of chromium on creep resistance and its effect on the parameters of diffusion of chromium in the alloys and the interatomic bond forces. (Author)

Protopopov, N. A. and Kul'gavchuk, V. M.
THE PULSE METHOD OF DETERMINING THE ENERGY OF SUBLIMATION OF METALS AND ALLOYS. 3 Aug 62 [11]p. 6 refs. FTD-TT-62-797; AD-284 079.
Order from OTS or SLA $1.60 62-33392

Unedited rough draft trans. of Inzhenerno-Fizicheskii Zhurnal (USSR) 1961, v. 4, no. 7, p. 84-90.

DESCRIPTORS: *Metals, *Alloys, *Sublimation, Energy, *Pulse generators, Oscillograms.

A description of the pulse method of determining the energy of sublimation of metals and alloys is given. The method is based on the use of the effect of the current pause occurring during pulse heating. A physical proof of the method is given, and the result of experiments to determine the energy of sublimation of a number of metals and alloys are presented. These results agree with published data obtained by other methods. Possible applications of the method are indicated. (Author)

Rozenberg, V. M.
THE EFFECT OF SUBSTRUCTURE ON THE CREEP OF NICKEL. Nov 61 [12]p. (16 refs. figs. omitted) 8 refs. [DSIR] NLL M.3652.
Order from OTS or SLA $1.60 62-25301

Trans. of #Fiz[ika] Met[allov i] Metalloved[enie] (USSR) 1961, v. 11, no. 6, p. 899-909.

DESCRIPTORS: *Nickel, *Creep, Reduction, Deformation, Annealing, Grains (Metallurgy), Heat treatment, Dislocations.

Deformation and annealing preceding creep-testing result in polygonization, the presence of which gives rise to reduced creep rate; this is due to an inhibition in the processes of fine and coarse slip in grains. The relative displacement of grains, observed on the surface of specimens, can be ascribed mainly to a non-uniform deformation of adjoining grains. (Author)

Samsonov, G. V., Kislyi, P. S., and Panasyuk, A. D.
BORIDE ZIRCONIUM TIPS FOR IMMERSION THERMOCOUPLES. 12 July 62 [7]p. (figs. omitted) 6 refs. FTD-TT-62-732; AD-283 891.
Order from OTS or SLA $1.10 62-32996

Unedited rough draft trans. of Ogneupory (USSR) 1961 [v. 26] no. 2, p. 72-74.

DESCRIPTORS: *Thermocouples, *Zirconium compounds, *Borides, Furnaces, *Liquid metals, Iron, Steel, Bronze, Brass.

The high stability of zirconium boride tips in molten steel and cast iron in calm state as well as in a stream of molten metal recommends them for use in baths of open hearth furnaces, cast iron discharge grooves of open-hearth furnaces, and in steel pouring buckets. High stability was also demonstrated in bronze and brass fusions. It is possible to organize continuous long lasting temperature measurements of the metal in smelters. (Author)

Schoofs, M.
SPECTROGRAPHIC DETERMINATION OF CADMIUM IN COPPER, USING AN INTERMITTENT ARC METHOD. 8 Nov 47, 4p. (figs. omitted).
Order from SLA $1.10 62-18440

Trans. of Revue de Métallurgie (France) 1945, v. 42, no. 10, p. 333-335.

DESCRIPTORS: *Copper, *Cadmium, *Spectrographic analysis, Electrodes, Direct current, Spark ignition, Copper wires, *Electric arcs.

Sulzer, H.
ATOMATIC ELECTRIC EQUIPMENT FOR SINTER PLANT. Nov 62.
Order from BISI £2 BISI-3054

Trans. of paper presented to the Belgian Conference on "Steelworks Automation", Feb 62.

DESCRIPTORS: *Industrial plants, Automation, *Electrical equipment, Computers, *Sintering.

Unksov, E. P. and Stepanskii, L. G.
CONCERNING DESIGN CALCULATION FOR EXTRUSION OF CLAD TUBING. 16 May 62, 5p. AID Rept. 62-68.
Order from OTS or SLA $1.10 62-25142

Abstract trans. of Kuznechno-Shtampovochnoe Proizvodstvo (USSR) 1962 [v. 4] no. 3, p. 3-17.

DESCRIPTORS: *Steel tubing, *Extrusion, Design, Dies, Temperature, Pressure, Alloys.

Vydrin, V. N.
DISTRIBUTION OF SPREAD AT THE CENTRE OF DEFORMATION. Nov 62.
Order from BISI £4 15s BISI-1940

Trans. from Obrabotka Metallov Davleniem: Sbornik Statei (USSR) 1956, v. 4.

DESCRIPTORS: *Rolling mills, Metals, Pressure, *Deformation, Equations.

Yavoiskii, V. I., Chernega, D. F. and others.
ELECTROLYTIC PHENOMENA IN THE PROCESS OF ELECTROSLAG HEATING OF INGOTS. Jan 62 [14]p. (figs. tables omitted) 9 refs. [DSIR] NLL M. 3643.
Order from OTS or SLA $1.60 62-25312

Trans. of Izvest[iya] Vys[shikh] Ucheb[nykh] Zaved[enii]. Chernaya Met[allurgiya] (USSR) 1961, no. 9, p. 32-43.

DESCRIPTORS: *Castings, Heating, Impurities, Direct current, Mechanical properties, Pickling, Photoengraving, *Steel castings, *Slags, *Electrolysis, *Electrolytes.

The most favorable distribution of non-metallic inclusions results from the heating of ingots with a direct-polarity direct current. The most uniform distribution of mechanical properties and the highest pickling capacity, determined for the whole slab, results from heating with a direct-polarity durect current, while the lowest etching capacity results from heating with a reverse-polarity direct current. (Author)

Ferrous Metals

USSR INDUSTRIAL DEVELOPMENT: SOVIET FERROUS METALLURGY NO. 87 23 Nov 62 [68]p. JPRS: 16316.
Order from OTS or SLA $6.60 63-13326

Trans. of Metallurgicheskaya i Gornorudnaya Promyshlennost' (USSR) 1962, no. 4[16] p. 6-9, 18-19, 32-35, 64-69, 89.

DESCRIPTORS: *Industrial production, Metallurgy, Industrial plants, Economics, *Iron, *Steel, Smelting, Electric furnaces, *Rolling mills, Specifications, *Explosive forming, Cutting tools, Forging, Conferences.

Contents:
Plant improvements at the Dnepropetrovsk Metallurgical Plant imeni Petrovskii, by I. I. Korobov
Pig iron production at the Ukraine, by G. Ya. Rutkovskii and N. E. Sidorov
Electric steel furnace production at the Dneprospetsstal' plant, by N. M. Chuiko and G. I. Antipenko
New continuous roiling mill produced by Novokramatorsk plant, by V. V. Neminushchii
The utilization of explosive energy in metallurgy, by V. G. Kononenko
Explosive energy serves the national economy, by E. A. Maistrenko.

USSR INDUSTRIAL DEVELOPMENT: SOVIET FERROUS METALLURGY NO. 88. 27 Nov 62 [11]p. JPRS: 16391.
Order from OTS or SLA $1.10 63-13292

Trans. of Narodnoe Khozyaistvo Kazakhstana (USSR) 1962 [v. 20] no. 7, p. 55-57 and from Rabochaya Gazeta (USSR) 1962, 27 Sep, p. 1.

DESCRIPTORS: *Industrial production, Metallurgy, *Steel industry, Industrial plants, Economics.

Contents:
Unsolved problems at the Karaganda metallurgical plant, by A. Alimusin
Developments at the Zaporozhstal' plant.

USSR INDUSTRIAL DEVELOPMENT: SOVIET FERROUS METALLURGY NO. 89. 3 Dec 62 [28]p. JPRS: 16484.
Order from OTS or SLA $2.60 63-13367

Trans. from Rabochaya Gazeta (USSR) 1962, 11 Oct, p. 2; Ekonomicheskaya Gazeta (USSR) 1962, no. 37[58] p. 4 and 13.

DESCRIPTORS: *Industrial production, *Metallurgy, Supplies, Metals, Scheduling, Production, *Industrial plants, *Construction, Maintenance, Transportation, *Steel industry, Smelting, Personnel, Open hearth furnaces, Blast furnaces, *Sheets, Rolling mills, Earth moving equipment, Excavators, Bulldozers, Hoists, *Tool steel, Machine tools, *Management engineering, Economics, Bessemer process.
Contents:
Dnepropetrovskii Sovnarkhoz again frustrates deliveries for the plant imeni Il'ich
Mismanagement at the Zhdanov plant imeni Il'ich, by N. Tereshchenko and L. Korenevich
Converter steel production methods receive insufficient attention
New construction is lagging at the Zhdanov metallurgical plant, by S. Ivanenko.

Bondarenko, P. S.
AUTOMATION OF BLAST FURNACE PROCESSES BY MEANS OF COMPUTERS (Avtomatizatsiya Protsessov Domennogo Proizvodstva s Primeneniem Schetno-Reshayushchikh Ustroistv). 26 Nov 62 [130]p. 51 refs. JPRS: 16355.
Order from OTS or SLA $10.50 63-13256

Trans. of Biblioteka po Avtomatika (USSR) 1960, v. 20, 144p.

DESCRIPTORS: Automation, *Metallurgy, *Blast furnaces, Operation, Control systems, *Computers, Digital computers, Industrial equipment.

The book presents general information on elementary and some complex computers employed in the automation of production processes in ferrous metallurgy. Systems are examined for regulating the course of the blast furnace process. A description of some domestic computers intended for controlling the blast furnace process is also presented. The book is intended for engineering-technical workers who deal with blast furnace automation problems but do not have special knowledge of computer techniques. (Author)

Chuiko, N. M.
BASIC DIRECTIONS FOR THE DEVELOPMENT OF QUALITY METALLURGY (OF STEEL) IN THE U.S.S.R. IN COMING YEARS. Feb 1962, 7p. 7 refs. [DSIR] NLL M. 3634.
Order from OTS or SLA $1.10 62-25317

Trans. of Izvest[iya] Vys[shikh] Ucheb[nykh] Zaved[enii]. Chernaya Met[allurgiya] (USSR) 1961, no. 12, p. 50-53.

DESCRIPTORS: *Steel, Quality control, Metallurgy, Production, Economics.

Hejduk, J. and Rechziegel, E.
A SIMPLE ELECTRONIC APPARATUS FOR THE COULOMETRIC DETERMINATION OF SMALL QUANTITIES OF CARBON IN STEEL. Nov 62.
Order from BISI £2 10s BISI-3007

Trans. of Chemicke Listy (Czechoslovakia) 1961, v. 55, no. 9, p. 1062-1067.

DESCRIPTORS: *Steel, *Carbon, Electronic equipment, Electrochemistry.

Massinon, J.
DETERMINATION OF OXYGEN IN STEELS BY THE DIFFUSION OF ALUMINUM. 5 Nov 48, 5p. (figs. tables refs. omitted).
Order from SLA $1.10 62-18442

Trans. of Rev[ue] de Métallurgie (France) 1947, v. 44 [no. 5/6] p. 174-179.

DESCRIPTORS: *Steel, *Oxygen, Determination, *Aluminum, Diffusion, Oxides, Metallurgical analysis.

Molotkov, V. A. and Fetisov, S. G.
INVESTIGATION OF THE HETEROGENEITY OF SHEET INGOTS FROM ALLOY STEEL. Jan 62 [8]p. (figs. omitted) 3 refs. [DSIR] NLL M. 3641.
Order from OTS or SLA $1.10 62-25310

Trans. of Izvest[iya] Vys[shikh] Ucheb[nykh] Zaved[enii]. Chernaya Met[allurgiya] (USSR) 1961, no. 9, p. 71-78. Another trans. is available from BISI £3 16s as BISI-2604, Mar 62.

DESCRIPTORS: *Castings, *Steel, *Metal plates.

The solidification zones of the 9.0 and 8.2 ton Cr-Ni-Mo steel ingots investigated are practically identical; they both have adequate homogeneity of the chemical composition of metal and the amount of oxide inclusions at the upper and middle levels. At the lower level, in the zone of the "segregation cone", there is a marked decrease

in the carbon content and an increase in the concentration of oxide inclusions. The development of both the axial and side segregations in the two ingots is insignificant. The highest level of mechanical properties is to be found in the surface layers of the ingots. In the central zone at the upper and middle levels, a drop of the mechanical properties of metal, particularly ductility and impact strength, is observed in both ingots. (Author)

Nam, B. P., Paisov, I. V. and others.
FACTORS DETERMINING THE HYDROGEN CONTENT IN FINISHED STEEL [AND] PROCESSES WHICH OCCUR DURING THE TEMPERING OF COMPLEX ALLOY STEEL. 7 Aug 62 [28]p. 11 refs. FTD-TT-62-517; AD-284 159.
Order from OTS or SLA $2.60 62-33370

Unedited rough draft trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Chernaya Metellurgiya (USSR) 1961, no. 7, p. 55-61 and 149-153.

DESCRIPTORS: *Steel, Alloys, *Hydrogen, Metallurgical analysis, *Iron, *Liquid metals, Sorption, Deoxidation, Slags, Hardness, Heat treatment, Temperature.

Schenck, H. and Wünsch, H.
THE EQUILIBRIUM SOLUBILITY OF HYDROGEN IN PURE LIQUID NICKEL AND IRON, AND THE INFLUENCE OF OXYGEN IN THE IRON. Nov 62.
Order from BISI £8 15s BISI-2668

Trans. of Archiv für das Eisenhüttenwesen (West Germany) 1961, v. 32 [no. 11] p. 779-790.

DESCRIPTORS: *Iron, *Oxygen, *Nickel, *Liquid metals, *Hydrogen, Solubility, *Chemical equilibrium, *Steel, Activity coefficient.

Shtaininger, Z. and Dol'nitskii, T.
VARIATION DE LA COUCHE SUPERFICIELLE D'UN MÉTAL SOUS L'ACTION DE L'USINAGE PAR ÉTINCELAGE [Izmenenie Poverkhnostnovo Sloya Metalla pod Deistviem Elektroiskrovoi Obrabotki] [Changes in the Surface Layer of Metal Under the Effect of Electric Sparking Machine] tr. by Nedelko. 29 Nov 61 [13]p. 12 refs. CEA Trans. no. R 1439 (text in French).
Order from OTS or SLA $1.60 62-19011

Trans. in French of #Metalloved[enie] i Term-[icheskaya] Obrabot[ka] Metal[lov] (USSR) 1961, no. 1, p. 29-33.
A trans. is available in English from OTS or SLA $1.60 as 62-24837, AEI TP/T-3017, 7 July 61 [13]p.

DESCRIPTORS: *Steel, Surface properties, *Spark machining, Manufacturing methods, *Electrodes, Copper, Aluminum, Graphite, Tin, Nickel, Metals.

For abstract see Technical Translations 8: 706, 1962.

Szöke, L.
INVESTIGATIONS INTO THE VACUUM DEGASSING OF LIQUID STEEL. Nov 62.
Order from BISI £6 BISI-2836

Trans. of Neue Hütte (East Germany) 1962, v. 7 [no. 2] p. 94-102.

DESCRIPTORS: *Steel, *Liquid metals, *Degasification, Vacuum apparatus, *Steel castings, Vacuum apparatus.

Zigel', O. D.
PECULIARITIES OF THE FORMATION OF BILLETS PRODUCED BY CONTINUOUS CASTING. Paper from the All-Union Conference on the Continuous Casting of Steel (no. 1) [17-19] Oct 55. Apr 60 [19]p. BISI Trans. 1614; [DSIR] NLL M. 4938.
Order from OTS or SLA $1.60 62-25883

Trans. of mono. [Nepreryvnaya Razlivka Stali] (The Continuous Casting of Steel) Moscow, 1956, p. 164-177. Another trans. is available from BISI 5 5s as BISI-1614 [1960].

DESCRIPTORS: *Steel castings, Production, Crystallization, Impurities, Radioactive isotopes, Mechanical properties, Quality control, Steel, *Austenite.

The total period of the advance of the crystallisation front up to the billet axis, under the existing condition of secondary cooling at the plants in question is approximately the same as the period of solidification for conventional ingots of the same cross section. Severe and irregular cooling of the billet which is being formed, as it emerges from the mould, causes the formation of internal cracks (except in billets of austenitic type steel) and when these are only slightly developed and there is no discontinuity, they appear in the form of thread-like segregations (shadow cracks). In view of the absence of big-end-up ingots which have an extensive liquid core during the process of their formation, their axial zone is characterised by a well-developed U-segregation and porosity which is increased when the rate of billet growth is increased for a given section. During the process of formation of ingots, shrinkage gives rise to metal streams which descend along the crystallisation front. Metal quality is quite satisfactory in the case of billets cast on inclined machines. The growth of a billet with interrupted pouring between cast sections in the semi-continuous casting method is accompanied by the formation of butt skins between the cast stages whereby these butt skins are partially melted during the process of subsequent growth.

Light Metals

Czempiel, A. and Haase, C.
ON THE QUESTION OF USING AL AS A CABLE-SHEATHING MATERIAL. 14 Mar 53, 8p. (figs. tables omitted).
Order from SLA $1.10 62-18435

Trans. of Aluminium (Germany) 1939 [v. 21, no. 7] p. 521-528.

DESCRIPTORS: *Electric cables, Protective coverings, *Aluminum, Mechanical properties, Manufacturing methods.

Dalmasso, Auguste.
THE USE OF BOLTS MADE OF LIGHT ALLOYS FOR THE MECHANICAL JOINING OF ALUMINUM CONDUCTORS. 1 Nov 52, 40. (figs. omitted).
Order from SLA $1.10 62-18439

Trans. of Revue de l'Aluminium (France) 1951 [v. 28, no. 182] p. 393-395.

DESCRIPTORS: *Conductors, *Aluminum, Electric connectors, *Bolts, *Aluminum alloys, Joints.

The use of high-strength bolts of light alloys for the mechanical joining of aluminium conductors makes it possible to keep the contact-pressure constant regardless of variations of temperature. This avoids the risk of creep in case of overheating or of poor contact in case of cooling; such risks are likely to occur with steel bolts, especially if the temperature, during the placing operation, is rather high. (Author)

Elssner, G.
ANODIC HARD OR THICK COATS ON ALUMINUM. [1962] 17p. (5 figs. omitted) 21 refs.
Order from SLA $1.60 62-14838

Trans. of Metall (West Germany) 1961 [v. 15, no. 12] p. 1194-1198.

DESCRIPTORS: *Aluminum, *Electroplating, Metal coatings, Production.

Nachtigall, E.
THE ELECTRICAL CONDUCTIVITY OF SUPER PURITY ALUMINIUM. [1962] 2p. (figs. refs. omitted) 4 refs.
Order from SLA $1.10 62-18228

Trans. of Aluminium (West Germany) 1955 [v. 31, no. 7/8] p. 341-342.

DESCRIPTORS: *Aluminum, Impurities, Iron, Silicon, *Electrical conductance, *Aluminum wire.

Nonferrous (except light) Metals

SOVIET INDUSTRIAL DEVELOPMENT: [SELECTED] TRANSLATIONS ON SOVIET NONFERROUS METALLURGY NO. 29. 5 July 62 [23]p. 10 refs. JPRS: 14376.
Order from OTS or SLA $2.60 63-13118

Trans. of Razvedka i Okhrana Nedr (USSR) 1962 [v. 28] no. 4, p. 8-15.

DESCRIPTORS: *Industrial production, Metallurgy, *Geological survey, *Ores, Deposits, Stratification, *Manganese, *Copper, *Pyrites.

Contents:
The potential of the manganese oligocene deposits in Georgia, by R. D. Lekvindze and V. Ya. Edilashvili
The Ozernoe copper pyrite deposit in the southern Urals, by I. P. Pastukhov.

Bychkova, Z. S., Ivanov, L. I. and others.
INVESTIGATION OF THE RECRYSTALLIZATION OF NICKEL-BASE, CAST, HEAT RESISTANT ALLOY [AND] INVESTIGATION OF PLASTIC DEFORMATION OF HIGH-MELTING METALS AT HIGH TEMPERATURES. 8 Aug 62 [35]p. 29 refs. FTD-TT-62-518; AD-284 105.
Order from OTS or SLA $3.60 62-33394

Unedited rough draft trans. of Akademiya Nauk SSSR. O[tdelenie] T[ekhnicheskikh] N[auk]. Izvestiya: Metallurgiya i Toplivo, 1960, no. 5, p. 70-85.

DESCRIPTORS: *Nickel alloys, *Heat resistant alloys, Grains (Metallurgy), Crystallization, *Chromium, *Niobium, *Titanium, Plastic flow, Deformation, High temperature research.

Diagrams of recrystallization of type II for the cast β alloy are constructed in accordance with the method of "uniform" upsetting as well as diagrams of type II with consideration of the holding time during annealing of the hot-deformed metal. The diagrams indicate the regions of full recrystallization in the presence of a dense or defective structure. The region of full recrystallization in the presence of welded defects is also shown. During all stages (initial and subsequent) of the hot-deformed alloy (in cast or previously recrystallized state), the mechanism of recrystallization resulting from the treatment (appearance and growth of new grains) is observed. (Bychkova et al.) For chromium, niobium, and titanium the dependence of the energy of activation of the process of established creep on the temperature is not observed. With an increase in the applied stress, the energy of activation of the creep of chromium and niobium decreases while that of titanium remains unchanged. Q creep of titanium is in absolute value less than the energy of activation of self-diffusion. The energy of activation of the creep of chromium and niobium for $\tau = 0$ is a complex magnitude, equal as a first approximation to the sum of the energy of activation of self-diffusion and the energy of the formation of vacant sites. (Ivanov et al.)

Chizhov, S. I. and Tikhonov, B. S.
STRIP AND BAND FROM HIGH-PURITY NICKEL. Dec 61 [6]p. (figs. tables omitted) 2 refs. [DSIR] NLL M.3648.
Order from OTS or SLA $1.10 62-25303

Trans. of #Tsvetnye Metally (USSR) 1961, v. 34, no. 9, p. 78-81.

DESCRIPTORS: *Nickel, Melting, Impurities, Castings, Vacuum apparatus, Degasification.

Mitskus, M. A. and Matulis, Yu. Yu.
CHARACTER OF PERIODIC FLUCTUATIONS IN THE ELECTROLYTIC REDUCTION OF CHROMIC ACID (O Kharaktere Periodicheskikh Kolebanii pri Elektroliticheskom Vosstanovlenii Khromovoi Kisloty). Sep 62 [13]p. 16 refs. RTS 2109.
Order from OTS or SLA $1.60 62-32948

Trans. of Akademiya Nauk Litovskoi SSR [Vilna]. Trudy. Seriya B, 1958, no. 4(16) p. 71-80.

DESCRIPTORS: *Electrochemistry, *Chromium plating, *Chromic acid, Electrolysis, Reduction, Polarization, Oscillograms, Chromium.

The characteristics of the potential oscillations and the conditions necessary for their occurence were studied during the electrolysis of chromic acid. Two aspects of the cathode potential oscillations were established. Frequent oscillations appear at such current densities, where, on the whole, only reduction of six-valent ions to three-valent ions take place; slow oscillations occur when the limiting current density is attained and are accompanied by very rapid evolution of hydrogen. The slow periodic oscillations first appear in those chrome plating solutions, in which both the reduction of hydrogen and metallic chromium is possible. These oscillations disappear if the temperature of the electrolyte is raised to a certain limit. (Author)

Orlowski, P.
MAINTENANCE OF QUALITY IN SPITE OF RESTRICTIONS ON NON-FERROUS METALS. [1962] 4p. (Tables refs. omitted).
Order from SLA $1.10 62-18235

Trans. of [Métaux (Corrosion--Industries)] (France) 1941, v. 16, no. 189/190, p. 41-43.

DESCRIPTORS: *Metals, Production, Quality control, Corrosion inhibition, Metallurgy.

Pan, V. M.
POLYMORPHIC TRANSFORMATION IN THE INTERMETALLIC COMPOUND $NbCr_2$. Dec 61 [5]p. (figs. omitted) 9 refs. [DSIR] NLL M. 3647.
Order from OTS or SLA $1.10 62-25315

Trans. of #Fiz[ika] Metal[lov i] Metalloved[enie] (USSR) 1961, v. 12, no. 3, p. 455-457.

DESCRIPTORS: *Niobium alloys, *Chromium alloys, Nickel alloys, Transformations, Lattices, X-ray diffraction analysis.

Ponomarev, V. D. and Machkasov, E. I.
INVESTIGATION INTO THE CHARACTERISTICS OF LEAD-ZINC SULPHIDE CONCENTRATES IN RESPECT TO DRYING IN DRUM DRIERS (Issledovanie Kharakteristik Sul'fidnykh Svintsogo-Tsinkovykh Kontsentratov Primenitel'no k Sushke Ikh v Barabannykh Sushilkakh). Sep 62 [19]p. 6 refs. RTS 2135.
Order from OTS or SLA $1.60 62-32958

Trans. of Akad[emiya] Nauk Kaz[akhskoi] SSR [Alma-Ata]. Inst[itut] Met[allurgii i] Obog[ashcheniya]. Trud 1959, v. 1, p. 115-126.

DESCRIPTORS: *Ores, *Lead compounds, *Zinc compounds, Sulfides, Humidity, Dehydration, Drying ovens Cooling.

The paper reports the experimental results of a study o the specific characteristics of lead-zinc sulphide concentrates, which are useful for the drying technique in drum driers. Analytical findings are given for the relations between poured weight, angle of repose and angle of slide of the concentrates and their moisture content. It has also been established that the permissable final humidity for the concentrates examined must be, after drying, 4 - 4.5% and the permissible temperature of the drying medium must be between 600 and 900° depending on the chemical composition of the concentrates. The advisability of using the concept of moisture concentration per unit volume of material, in any analysis of the drying process but especially in any comparisons of the intensity of drying different concentrates, has been demonstrated. (Author)

Structural Metallurgy and Corrosion

METHOD OF FABRICATING SEMICONDUCTOR DEVICES USING AN ANTI-EROSIVE MATERIAL. Nov 62.
Order from WBI $2.00

Trans. of main claims, including drawings, of utility model publication no. 37-31219, 24 Nov 62, by Texas Instruments, Inc.

DESCRIPTORS: *Semiconductors, Materials, *Corrosion inhibition, Manufacturing methods, Materials.

Bastien, P., Bleton, J., and Kerverseau, E. de
THE INFLUENCE OF CRYSTAL DIMENSIONS ON PROPAGATION OF SUPERSONICS IN METALS. 26 Jan 50, 2p.
Order from SLA $1.10 62-18489

Trans. of Academie des Sciences [Paris]. C[omptes] R[endus] (France) 1948 [v. 227, no. 14] p. 726-728 (pub. by Gauthier-Villars et Cie., Paris).

DESCRIPTORS: *Metals, *Supersonics, Propagation, *Crystals, Microstructure, Crystallization, Non-destructive testing.

Elagin, V. I. and Ekhina, E. V.
DETERMINATION OF TENDENCY OF Al-Mg ALLOYS TO STRESS CORROSION FROM THE MICROSTRUCTURE, tr. by S. Klemantaski. [1962] [9]p. FRI Trans. no. 165; [DSIR] NLL M. 4684.
Order from OTS or SLA $1.10 62-19134

Trans. of A[viatsion[nyi] T[ekhnologicheskii] I[nstitut] M[oscow]. Trudy (USSR) 1960, v. 43, p. 86-90.

DESCRIPTORS: Microstructure, Metallurgical analysis, *Corrosion, Stresses, *Magnesium alloys, *Aluminum alloys, Stability, Heat treatment, Decomposition.

Analysis of microstructure is a good method for checking the corrosion stability of AMg6 alloy. This is especially important when the article is subjected to complicated heat treatment (annealing after rolling,

heating before stamping, intermediate annealing during stamping or deep drawing) and it is difficult to forecast the degree of decomposition of the solid solution of magnesium in aluminium and hence the tendency of the material to stress corrosion. (Author)

Glikman, L. A.
CORROSION; MECHANICAL STRENGTH OF METALS, tr. by J. S. Shapiro. 1961. 1v.
Order from Butterworths Scientific Publications, 88 Kingsway, London, Eng.

Trans. of mono. [Korrozionno-Mekhanicheskaya Prochnost' Metallov, pub. by Mashgiz, 1955].

DESCRIPTORS: *Metals, Mechanical properties, *Corrosion, Corrosion research.

Grozin, B. D. and Nizhnik, S. B.
PHASE AND STRUCTURE CHANGES IN CARBON STEEL UNDER IMPULSE EFFECTS OF HIGH TEMPERATURES AND PRESSURES. [1962] 11p. 7 refs.
Order from OTS or SLA $1.60 62-16181

Trans. of #Fiz[ika] Met[allov] i Metal[lovedenie] (USSR 1961, v. 12, no. 1, p. 84-90.

DESCRIPTORS: *Steel, Heat treatment, Hardening, *Microstructure, *Phase transitions, *Carbon, Metallurgical analysis, Temperature, Pressure.

Keil, Albert.
CAN GALVANIC NOBLE-METAL COATINGS INHIBIT STRESS CORROSION IN BRASS? [1962] 4p. 4 refs.
Order from SLA $1.10 62-18003

Trans. of Galvanotechnik (West Germany) 1962, v. 53, no. 2, p. 95-96.

DESCRIPTORS: *Brass, Stresses, Corrosion inhibition, Metal coatings, *Gold plating, *Silver plating, Electroplating.

Experiments permit the following conclusions: A lasting sure protection against stress corrosion is not obtained either by silver or by gold plating. According to the randomness in galvanic treatment and according to whether the plating was plastically deformed or elastically strained, there were graduated differences in a limited protective effect against corrosion attack. A coating of a non-noble metal gave better protection, since presumably the pores existing in every galvanic coating were closed up by corrosion products and thus the base metal was not attacked. Because corrosion attack in practice is likely over the total surface area, especially in the presence of mechanical wear, here the protective effect is of limited duration only. (Author)

Kurdyumov, G. V. and Perkas, M. D.
THE EFFECT OF CRYSTALLINE PROPERTIES AND OF GRAIN'S SUBSTRUCTURE ON THE STRENGTH OF METALS. 18 July 62 [22]p. (figs. omitted). FTD-TT-62-272; AD-283 895.
Order from OTS or SLA $2.60 62-32990

Unedited rough draft trans. of #Metallovedenie i Termicheskaya Obrabotka Metallov (USSR) 1961, no. 9, p. 33-43.

DESCRIPTORS: *Metallic crystals, Grains (Metallurgy), *Alloys, Microstructure, Tensile properties, Deformation.

The deformation resistance of a metal is basically determined by the crystalline properties of a given material (resistance to the displacement of dislocations, within the regions, free of subboundaries) and by grain's substructure (size of microregions, presence of inner boundaries within the grain, and the degree of distortion of the neighboring regions). Experimental data indicate that the effects of both factors are additive. Crystalline properties may be modified by the introduction of admixtures, and of the alloying elements, by the formation of distortions, distributed within the submicroregions (irradiation, tempering of pure metals), as well as by the variation of temperature. A comparative evaluation of crystalline properties may be effected by means of measurements of yield points and of hardness of a non-tempered metal, as well as by the determination of second order deformation of the hardened metal. Alloying of the metal, can alter, both the effect of temperature on the stability of substructure and on the properties of crystals. In order to increase the deformation resistance at high temperatures, it is important, that both factors should increase, while the rate of decrease of crystalline resistance to the elementary plastic deformation should drop with increasing temperature. (Author)

Pogrebnoi, E. N., Braun, M. P., and Kasatkin, B. S.
COALESCENCE, SPEROIDIZATION, AND HEALING OF MICROPORES AND MICROCRACKS IN IRON ALLOYS; INFLUENCE OF ALLOYING ELEMENTS ON THE PROPERTIES OF STEEL; LOCAL PLASTIC DEFORMATION DURING BRITTLE DESTRUCTION OF COMMERCIAL IRON. 8 Aug 62 [51]p. 38 refs. FTD-TT-62-519; AD-284 126.
Order from OTS or SLA $5.60 62-33390

Unedited rough draft trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. Izvestiya: Metallurgiya i Toplivo, 1961, no. 1, p. 58-73 and 108-116.

DESCRIPTORS: *Iron, *Steel, Alloys, Metallic crystals, Grains (Metallurgy), Microstructures, Deformation, Tensile properties, Plastic flow, Fracture (Mechanics).

Reininger, H.
POWDERED COLDSPRAY PROCESS. [1962] [10]p. (figs. tables omitted) 9 refs.
Order from SLA $1.10 62-16541

Trans. of Werkstoffe und Korrosion (West Germany) 1956, v. 7, no. 8/9, p. 453-460.

DESCRIPTORS: *Coatings, Powers, Sprays, *Paint sprayers, Spray nozzles, *Corrosion inhibition.

A two-nozzled cold-spraying gun is described by means of which it is possible to spray suitable metallic and

non-metallic powder and any mixtures, both together with a binding agent under six atmospheres in order to make protective coatings. Smooth metallic surfaces must be previously rendered rough by sanding, and zinc spraying of 0.05 to 0.1mm thickness layers has proved to be suitable as an intermediary layer. (Author)

Zakharova, G. V., Popor, I. A., and others.
THE USE AND PROPERTIES OF NIOBIUM: [FIGS. AND TABLES]. [1962] [7]p. (text omitted). Warren Spring Lab. [Trans.] NT 749; DSIR NLL M. 4969.
Order from OTS or SLA $1.10 62-25895

Partial trans. (figs. and tables) of Tsvet[nye] Met[ally] (USSR) 1959 [v. 32, no. 1] p. 73-79.

DESCRIPTORS: *Niobium, Physical properties, Microstructure, Mechanical properties, Temperature, Stability, Hardness, Stresses, Crystal structure.

NUCLEAR PHYSICS AND NUCLEAR CHEMISTRY

ATOMIC RESEARCH IN LATVIA: INTERVIEW WITH THE PRESIDENT OF THE ACADEMY OF SCIENCES LATVIAN SSR, K. K. PLAUDE. 20 Nov 62 [4]p. JPRS: 16274.
Order from OTS or SLA $1.10 63-13307

Trans. from Sovetskaya Latviya (USSR) 1962, 26 July, p. 2.

DESCRIPTORS: *Nuclear reactors, *Research reactors, Radiation effects, Crystals, Semiconductors, Dielectrics, Radiobiology.

A summary of research projects proposed in conjunction with the Salaspils reactor.

(Nuclear Physics and Nuclear Chemistry, TT, v. 9,

[NUCLEONICS] 1960, VOL. 5: [SELECTED ARTICLES 1962 [760]p. PL-480 AEC.
Order from OTS $7.75 AEC-tr-4156

Trans. of Nukleonika (Poland) 1960, v. 5 (articles of Polish origin only).
##Other translations of these articles are available elsewhere.

DESCRIPTORS: *Nucleonics, Poland, *Nuclear reactors, *Radioactive isotopes, Carbon, *Uranyl radicals, Nitrates, *Thorium, *Uranium, Sorption, *Butyl radicals, Phosphates, *Hydrocarbons, *Iodine, Urine, *Coincidence counting, Generators, *Scintillation counters, *Radiation alarms, *Cyclotrons, *Complex compounds, Chlorides, Sulfates, *Iron, *Reactor coolants, Gamma rays, *Phosphors, *Pulse discriminators, *Monitors, *Cesium, Fast neutrons, *Neutron counters, *Neutron scattering, *Cobalt, *Film badges, *Sulfur, Polarigraphic analysis, Mass spectroscopy, *Geiger counters, *Radiography, *Strontium, Milk, Bone, *Sodium, *Potassium, *Flotation, *Phosphoric acids, *Ion sources, Decontamination, *Protective clothing, *Semiconductors, *Atomic structure, *Neutron diffraction analysis, *Reactor control, *Deuterium, *Plutonium, *Calcium, *Pulse amplifiers, Ores, *Barium compounds, *Uranium compounds, Oxides, *Neutron detectors, *Tin, *Zinc, Crystals, *Radioactive fall-out, *Gamma ray spectroscopy, *Rare earth elements, *Peat, Chromatographic analysis, *Cerium, *Thermopiles, *Beta counters, Ionization, *Reactor fuels, *Reactor moderators, Graphite, Chlorination, *Thulium, *Neutron spectroscopy, Probability, Amines, Neutron flux density.
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Measurement of the angular distribution of neutrons scattered from the reactor channel, by T. Rzeszot
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The strontium-90 level in milk and bones of cattle- and human-beings in Poland in 1918, by J. Liniecki and others

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Method of simultaneous determination of small sodium and potassium quantities by neutron activation, by
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Decontamination of surfaces contaminated with radio-isotopes
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The effect of some hydrodynamic factors on the catalytic deuterium exchange reaction between hydrogen and water vapor, by A. Selecki
The influence of nitric acid concentration on extraction of plutonium (IV) — tetrabutylammonium nitrate complex into mixed solvent, by M. Taube
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Diffusion of tin, zinc and cobalt in single crystals and polycrystals of tin, by W. Chomka and J. Andruszkiewicz
Determination of impurities in the WWR-S reactor cooling water using γ-spectroscopy, by K. Jozefowicz and L. Adamski
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The separation of uranium and rare earths elements from ethylenediaminetetraacetic acid-solutions on ion-exchange resins, by I. Krawczyk
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Separation of the various oxidation states of plutonium by reversed-phase partition chromatography, by R. Gwozdz and S. Siekierski
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Polish Symposium on the Use of Radioisotopes (no. 1)

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The ρ-Process as a source of bypassed nuclide synthesis, by M. Taube

(for rest of abstract see TT, v. 9, p.)

The recovery of uranium from leaching liquors by solvent extraction with dodecylphosphoric acid, by T. S. Urbanski

Extraction of uranium from sulfate solutions by tri-η-oktylamine, by C. Deptula and W. Korpak

Absolute neutron density measurements in the WWR-S "Ewa" reactor at Swierk, by E. T. Jozefowicz

Energetic parameters of high frequency discharge in hydrogen, by S. Chwaszczewski

Estimation of the rate of material transport in rotary kilns used for decomposition of calcium sulphate at the sulphuric acid plant at wizow

100-Channel pulse amplitude analyzer

Rapid detection of uranium traces in the presence of iron and copper

The absolute methods of activity measurements of radioisotopes.

Akimov, Yu. K., Savchenko, O. V., and Soroko, L. M.
SEARCH FOR ANOMALIES IN THE ENERGY DEPENDENCE OF THE CROSS SECTION OF REACTION $p+p \rightarrow d+\pi^+$ IN THE THRESHOLD REGION OF PAIR FORMATION OF π-MESONS, tr. by S. Shewchuck.
Aug 61, 8p. 5 refs.
Order from OTS or SLA $1.10 UCRL Trans-702

Trans. of Joint Inst[itute] for Nucl[ear] Res[earch] (USSR) [Rept]. P-710, n.d.

DESCRIPTORS: *Nuclear reactions, Energy, Particles, *Protons, *Deuterons, *Pions, Mesons.

An attempt is made to observe non-monotonies in the energy dependence of the differential cross section of reaction $p + p \rightarrow d + \pi^+$ in the neighborhood of thresholds of pair formation of π-mesons. The results of the measurements performed do not give a specific answer to this question and permit one only to be convinced that if such a type of anomaly does exist then their magnitude does not exceed 2% of the average value of the differential cross section of this reaction in the interval of energies of incident protons 574 to 648 Mev. (Author)

Batusov, Yu. A., Bogachev, N. P. and others.
PION PRODUCTION IN THE INTERACTIONS OF 280 MEV π^+-MESONS WITH PHOTOEMULSION NUCLEI.
[1962] [13]p. 12 refs. NP-TR-334.
Order from OTS or SLA $1.60 62-23561

Trans. of Joint Institute for Nuclear Research (USSR) P-335, 1959.

DESCRIPTORS: *Pions, Production, *Mesons, Photographic emulsions, Nuclei.

Eleonskii, V. M., Zyryanov, P. S., and Silin, V. P.
THE COLLISION INTEGRAL OF CHARGED PARTICLES IN A MAGNETIC FIELD. 11 May 62 [6]p.
3 refs. FTD-TT-62-378.
Order from OTS or SLA $1.10 62-25838

Unedited rough draft trans. of #Fizika Metallov i Metallovedenie (USSR) 1961, v. 11, no. 6, p. 955-957.

DESCRIPTORS: *Magnetic fields, *Particles, Scattering, Electrons, Beta particles, V particles, Probability, *Integrals, Tensor analysis.

The collision integral is derived for charged nonrelativistic particles in a homogeneous magnetic field. Results are given for the case where charged particles are scattered by each other, and for the case where electrons are scattered by stationary impurities. The shielding of the charged-particle field is taken into account systematically with the aid of the tensor of the complex permittivity of the medium $\varepsilon_{ij}(\omega, q)$. This tensor relates the induction in the medium to the field depending on the coordinates and the time according to the law $\exp\{-i\omega t + iqr\}$. The fact that this permittivity gives a measure of the delay compels us, when calculating the scattering probability, to use the methods of the theory of radiation. These methods are based on the principle of correspondence. (Author)

Ichiba, Sumio.
THE BEHAVIOR OF FISSION PRODUCT RARE GASES IN THE CHANGE OF SOLID PHASE OXIDATION AND REDUCTION OF URANIUM OXIDES, tr. by E. R. Hope
Aug 62 [10]p. 8 refs. DSIS-T-74-J.
Order from NRCC NRCC C-4127

Trans. of [Nihon Genshiryoku Gakkaishi] (Japan) 1961, v. 3, no. 9, p. 705-710.

DESCRIPTORS: *Reactor fuels, *Uranium compounds, Oxides, Crystal structure, Phase studies, Oxidation-Reduction reactions, *Fission products, Gases, *Xenon.

Lebedenko, M. M.
SUCCESSFUL COLLABORATION BY PHYSICISTS OF THE SOCIALIST COUNTRIES. 10 July 62 [5]p.
FTD-TT-62-923; AD-284 115.
Order from OTS or SLA $1.10 62-33001

Unedited rough draft trans. of Priroda (USSR) 1960 [v. 49] no. 11, p. 68.

DESCRIPTORS: *Conferences, Nuclear physics, Physicists.

A review of contributions made at the eighth session of the Academic Council of the Joint Institute on Nuclear Research.

Leipunskii, O. I.
THE PHYSICS OF SHIELDING. 22 June 62 [38]p.
71 refs. FTD-TT-62-832; AD-283 883.
Order from OTS or SLA $3.60 62-32998

Unedited rough draft trans. of #Atomnaya Energiya (USSR) 1962 [v. 12, no. 3] p. 216-229.
Another trans. is available in French from OTS or SLA $8.60 in 62-33253 [1962] [100]p.

DESCRIPTORS: *Shielding, Physics, Gamma rays, Neutrons, Electrons, Dosimeters, *Radiological contamination, *Radioactive waste disposal, *Radiobiology, Radiation injuries, Metabolism, Excretion.

This article lists the main problems of the physics of shielding, illustrated by the latest experiments in various directions. (Author)

Moiseenko, E. I. and Rozen, A. M.
EXTRACTION OF PLUTONIUM BY MEANS OF TRIBUTYL PHOSPHATE. II. EFFECTS OF TEMPERATURE ON PARTITION OF $Pu^{(IV)}$, tr. by M. McCarthy. 1961 [9]p. 2 refs. DEG inf. Ser. 315(R).
Order from OTS or SLA $1.10 62-25397

Trans. of Radiokhimiya (USSR) 1960 [v. 2] no. 3, p. 274-280.
Another trans. is available from OTS $2.75 in AEC-tr-4577, 1962, 253p.

DESCRIPTORS: *Radiochemistry, *Plutonium, Separation, Butyl radicals, Phosphates, Temperature, *Uranyl radicals, Nitrates, Thermodynamics.

In the measurements of the distribution coefficients of $Pu^{(IV)}$ in the range of acidity 0.1-10.0M and concentration of uranyl nitrate 0.021-1.26M at temperatures of 20, 30, 50 and 70°C it was shown that with acidities up to 5M the distribution coefficient in the absence of uranyl nitrate decreases with temperature, whilst at higher acidities it increases. The first effect is explained by a decrease in the distribution constant with temperature and the second one by an increase of the activity coefficients. An approximate assessment was made of the thermodynamic distribution constants of $Pu^{(IV)}$, the activity coefficients in the aqueous phase and the heat of extraction. (Author)

Selinov, I. P.
D. I. MENDELEEV'S PERIODIC SYSTEM OF ELEMENTS AND CERTAIN PROBLEMS OF ATOMIC PHYSICS (Periodicheskaya Sistema Elementov D. I. Mendeleeva i Nekotorye Voprosy Atomnoi Fiziki). Dec 53 [18]p. 32 refs. TIB/T4215; [DSIR] NLL M. 2668.
Order from OTS or SLA $1.60 61-23516

Trans. of Usp[ekhi] Fiz[icheskikh] Nauk (USSR) 1951, v. 44, no. 4, p. 511-526.

DESCRIPTORS: *Chemical elements, Tables, Nuclear physics, Atomic weight, Isotopes, *Atomic structure, *Radioactive isotopes.

Instruments and Installations

Baranov, V. I., Khristyanov, V. K., and Karasev, B. V.
THE PHOTONEUTRONIC METHOD OF DETERMINATION OF THE CONCENTRATION OF DEUTERIUM IN NATURAL WATER, tr. by E. Bevitt. 1961 [5]p. 6 refs. DEG-Inf. Ser. 123(CA).
Order from OTS or SLA $1.10 62-25396

Trans. of Akad[emiya] Nauk SSSR. Dokl[ady] 1959, v. 129, no. 5, p. 1035-1037.
Another trans. is available from AGI $8.00.

DESCRIPTORS: *Deuterium, Determination, Water, Neutrons, *Radiation counters.

Trostin, I. S., Savinov, E. G., and Stasevich, B. M.
ION SOURCE FOR A CYCLOTRON WITHOUT A FILAMENT (Beznakal'nyi Ionnyi Istochnik dlya Tsiklotrona) tr. by Helen Basil. May 62, 9p. 4 refs.
Order from OTS or SLA $1.10 AEC-tr-5137

Trans. of #Pribory i Tekhnika Eksperimenta (USSR) 1961, v. 6, no. 3, p. 22-25.

DESCRIPTORS: *Cyclotrons, *Ion sources, Construction, Feeding, Tests, Particle accelerators, Accelerators.

A description of an ion source with a "cold cathode" for a cyclotron is given. An arc discharge with oscillation of electrons along a magnetic field was used in the source. The ion source is working either under continuous or pulse operational conditions. This source was used to obtain D^+ ions. The life of the electrodes of the ion source under continuous operational conditions was 200 hours, and under pulse conditions it exceeded 500 hours. Application of such an ion source increased the beam current on terminal orbits more than twice and stimulated a stabler operation of the cyclotron. (Author)

Vasilenko, E. and Vladimirskii, V.
VICTORY OF OUR PHYSICISTS [AND] GIANT-ACCELERATOR. 26 Feb 62 [13]p. FTD-TT-62-85.
Order from OTS or SLA $1.60 62-23670

Unedited rough draft trans. of Izvestiya (USSR) 1961, no. 243(13789) p. 1, col. 3-6; p. 3, col. 1-3.

DESCRIPTORS: *Particle accelerators, *Proton accelerators, Accelerators, Construction, Operation

Vorob'ev, A. A. and Kovalenko, E. S.
A CYCLOTRON WITH TRAJECTORY CONTROL BY MEANS OF A HIGH-FREQUENCY FIELD. 8 Aug 62 [6]p. 2 refs. FTD-TT-62-1036; AD-284 098.
Order from OTS or SLA $1.10 62-33077

Unedited rough draft trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Fizika (USSR) 1961, no. 5, p. 36-38.

DESCRIPTORS: *Cyclotrons, *Particles, *Particle trajectories, *Control, *Particle accelerators, *High frequency, Electromagnetic fields, Vector analysis, Integral equations, Taylor's series, Matrix algebra, Oscillation, Inequalities.

A cyslotron in which the particle trajectories are controlled by the high-frequency field of a traveling electromagnetic wave has certain advantages over ordinary cyclotrons. The most important of these advantages are: (1) the absence of a magnet, which is the most expensive part of a cyclotron, (2) the possibility of increasing the repetition rate to several kilocycles with the resultant possibility of increasing the average radiation intensity, and (3) the possibility of obtaining at the output of the cyclotron particles with an energy spread considerably smaller than that of linear accelerators. (Author)

AN ADVANCED RESEARCH PROGRAM ON THE APPLICATION OF STEAM-WATER SPRAY TO THE COOLING OF LIGHT WATER REACTORS. CAN-2 Quarterly report no. 2, 1 Oct-31 Dec 61, on Contract 060-61-7 RDI. [1962] 12p. CISE R-51.
Order from OTS or SLA $1.60 EURAEC-222

Trans. of a rept. from Centro Informazioni Studi Esperienze, Milan (Italy) 15 Jan 62.

DESCRIPTORS: *Light water reactors, Cooling, Heat transfer, Hydrodynamics, Corrosion, Steam, Water, Sprays, Nuclear reactors.

A complete set of experiments was carried out at constant pressure (1,000 psi) with a test element 0.52 cm I.D. Heat transfer coefficient was measured both at the inlet and at the outlet of the heated section. The same element is now being used to test the influence of the mixing length on burnout. New codes for data elaboration were prepared. Hydrodynamics experiments were performed with the argon-water mixture with four different test sections (perspex, round, 1.5 cm I.D.; perspex, annular, 1.5 cm I.D. and 2.5 cm O.D.; PVC, round, 1.5 cm I.D.; stainless steel, round, 2.5 cm I.D.). Several experiments were also performed with ethyl alcohol in the PVC round section. Corrosion tests are in progress for investigating the behaviour of Zircaloy-2 specimens during long exposures: some specimens reached about 2,500 hours of exposure. (Author)

ATOMIC ENERGY, 1961, VOL. 11, NO. 2: SELECTED ARTICLES. 16 Jan 62 [49]p. 37 refs. FTD-TT-61-198.
Order from OTS or SLA $4.60 63-13448

Unedited rough draft trans. of #Atomnaya Energiya (USSR) 1961, v. 11, no. 2, p. 109-121, 133-139, 184-189.
##Another trans. of (p. 184-185) is available from OTS $2.25 in 62-11178, JPRS-11178, 20 Feb 62, 87p.

DESCRIPTORS: *Nuclear energy, Literature, Nuclear reactors, *Neutron absorbers, Burnable poisons, Design, Pipes, Metals, Alkali metals, *Liquid metals, Turbulence, *Heat transfer, *Fast neutrons, Neutrons, Neutron flux, Radiation damage, Cobalt, Cesium, Gold, Radioactive isotopes, *Gamma rays, Attenuation, Shielding, Lead, Tungsten, Uranium.

Contents:
The use of burnable absorbers in nuclear reactors, by V. S. Volkov and others
Heat transfer during turbulent flow of molten metals in pipes, by V. I. Subbotin and others
##The fast-neutron flux responsible for radiation damage to materials, by N. N. Ponomarev-Stepnoi
The attenuation of the α-radiation of Co^{60}, Cs^{137}, and Au^{198} by means of a cylindrical lead shield, by Z. S. Aref'eva and others
General tables for calculating tungsten and uranium α-radiation shields, by L. M. Mikhailov and Z. S. Aref'eva.

CORROSION OF NUCLEAR MATERIALS. Quarterly rept. no. 3, 1 Sep-30 Nov 60. [1962] 115p. Supersedes TID-12 577 and TID-12 578.
Order from OTS or SLA $9.60 EURAEC-94

Trans. of a rept. prepared in cooperation with Centre Belge d'Étude de la Corrosion, Brussels; Centre d'Étude de l'Énergie Nucléaire, Brussels (Belgium); Société d'Études, de Recherches et d'Applications pour l'Industrie, Brussels (Belgium) Dec 60.

DESCRIPTORS: Corrosion, *Corrosion research, Steel, Stainless steel, Aluminum, Iron, Molybdenum, Electrochemistry, Electrolysis, Electrolytic cells, Electrodes, Potential theory, Potentiometers, Test methods, Nuclear reactors, Materials, Radiation effects, Corrosive liquids.

(See also EURAEC-30)

THE DEVELOPMENT OF CERAMIC FUEL ELEMENTS FOR HIGH TEMPERATURE REACTORS. Quarterly rept. no. 2, Apr-June 61, on Contract EUR/C/3283/61 e. [1962] 19p. 20 refs.
Order from OTS or SLA $1.60 EURAEC-116

Trans. of a rept. from Battelle-Institut e.V., Frankfurt-am-Main (West Germany) July 61.

DESCRIPTORS: *Fuel elements, *Ceramic materials, Uranium compounds, Dioxides, Sinters, Beryllium compounds, Oxides, Additives, Thermal conductivity, Oxidation, Chemical analysis, Calorimetry, Sintering, *Nuclear reactors, Temperature, Reactor fuels.

To examine the thermal conductivity of UO_2 sinters with additives of BeO alone or BeO and alkaline earth oxides, UO_2 sinters without additives were fabricated. These sinters are necessary in order to determine the changes brought about in thermal conductivity by the additives in question as compared with the thermal conductivity of pure UO_2 sinters. The characteristics of the available UO_2 powders were determined and in particular the O/U ratio by means of the oxidation method, the specific surface according to the BET method and the sinterability by means of differential thermal analysis. Pressing and sintering tests were carried out to obtain the conditions for the fabrication of UO_2 sinters with a density in the region of 92 to 96% T.D. (Author)

IMPROVEMENT OF HEAT TRANSFER IN BOILING WATER REACTORS. Quarterly rept. no. 3, Oct-Dec 60. [1962] [26]p.
Order from OTS or SLA $2.60 EURAEC-35

Trans. of a rept. from Société Nationale d'Étude et de Construction de Moteurs d'Aviation, Suresnes (France) 25 Jan 61.

DESCRIPTORS: *Boiling water reactors, *Heat transfer, Steam, Water, Mixtures, Separation, Vortices, Refrigerants, Tests, Nuclear reactors.

IMPROVEMENT OF HEAT TRANSFER IN BOILING WATER REACTORS. Quarterly rept. no. 4, Jan-Mar 61. [1962] [30]p.
Order from OTS or SLA $2.60 EURAEC-96

Trans. of a rept. from Société Nationale d'Étude et de Construction de Moteurs d'Aviation, Suresnes (France) 26 Apr 61.

DESCRIPTORS: *Boiling water reactors, *Heat transfer Steam, Water, Mixtures, Separation, Vortices, Refrigerants, Tests, Nuclear reactors.

IMPROVING THE SINTERING OF URANIUM OXIDE WITH A VIEW TO INCREASING ITS HEAT CONDUCTIVITY. Quarterly rept. no. 2 on Contract 004-60-3 RDF. [1962] 8p. supersedes TID-12 480
Order from OTS or SLA $1.10 EURAEC-6

Trans. of a rept. from Compagnie Générale de Télégraphie sans Fil, Paris (France) n. d.

DESCRIPTORS: *Uranium compounds, *Oxides, *Sintering, Thermal conductivity, Spectrographic analysis, Density, Hardness, Microanalysis, Fuel elements, Powder metallurgy.

[IMPROVING] THE SINTERING OF URANIUM OXIDE WITH A VIEW TOWARDS INCREASING ITS THERMA CONDUCTIVITY. Quarterly rept. no. 3, 15 Sep-15 Dec 60, on Contract 004-60-3 RDF. [1962] 27p. Supersedes TID-12 481.
Order from OTS or SLA $2.60 EURAEC-7

Trans. of a rept. from Compagnie Générale de Télégraphie sans Fil, Paris (France) n. d.

DESCRIPTORS: *Uranium compounds, *Oxides, *Sintering, Thermal conductivity, Density, Spectrographic analysis, Hardness, Microanalysis, Fuel elements, Powder metallurgy.

(See also EURAEC-6)

METHOD FOR PRODUCING URANIUM CARBIDE. [1962] 4p.
Order from OTS or SLA $1.10 62-14889

Trans. of Belgian patent specification 597826, by Deutsche Gold- und Silber- Scheideanstalt vormal Roessler (West Germany) 1960 (appl. filed West Germany, 28 Dec 59, no. D 32 222 IVa/12 i).

DESCRIPTORS: *Reactors fuels, *Uranium compounds, *Carbides, Production, Graphite, Oxides.

A method for obtaining uranium carbide, in particular uranium monocarbide, by the transformation, at a high temperature, of mixtures of uranium oxide and finely powdered carbon, characterized in that the briquets of uranium oxide and carbon, in particular of graphite, are subjected to the action of an electric arc, at a temperature higher than 2450°C, in a shell made of a material containing carbon. The pressure in the furnace, during melting process, is kept higher than 0.1 atm. Utilization as a fuel in nuclear reactors of uranium carbide, and in particular uranium monocarbide, is obtained by the action of an electric arc on briquets of oxides of uranium and carbon. (Author)

NUCLEAR ENERGY, 1962, VOL. 5, NOS. 4-6: [SELECTED] ARTICLES. 18 Dec 62 [75]p. 204 refs. JPRS: 16739.
Order from OTS or SLA $7.60 63-13491

Trans. of Kernenergie (East Germany) 1962, v. 5, no. 4/5, p. 438-442; no. 6, p. 450-461, 474-480, 489-496.

DESCRIPTORS: *Nuclear energy, Literature, *Nuclear engineering, Scientific research, East Germany, *Nuclear radiation spectrometers, Magnets, *Cyclotrons, Particle accelerators, Gamma rays, Fast neutrons, Thermal neutrons, Neutrons, Particle accelerator targets, Radiation measurement systems.

Contents:
Nuclear research and nuclear engineering in the German Democratic Republic, by J. Muhlenpfordt
New developments in the field of magnetic β-spectrometers (summarizing report) by L. Werner
Investigations of stray radiation in the Rossendorf cyclotron y-120-1, by H. Abel and W. Rossbander
Nuclear research and nuclear engineering in the German Democratic Republic, by W. Hartmann.

ON THE CONSTITUTION OF ZIRCONIUM-NIOBIUM ALLOYS. Special report no. 1 on Contract EUR/C/262/2/60 d (009-60-4 RDA). [1962] 31p. 18 refs.
Order from OTS or SLA $3.60 EURAEC-137

Trans. of a rept. from Metallgesellschaft A. G., Frankfurt a. M. (West Germany) 15 Aug 61.

DESCRIPTORS: Nuclear reactors, Protective coverings, *Zirconium alloys, *Niobium alloys, Iodides, Grains (Metallurgy), Physical properties.

An investigation of the zirconium-niobium system revealed that even when iodide zirconium with 99.9% of purity was used, the oxygen content of the smelted alloys imparts a decidedly ternary character to the constitution pattern. The result thereof is that the monotectoid point of the binary system extends over a transformation range which, for alloys made of iodide zirconium, spreads over some 100°C and for those made of spongy zirconium, over more than 200°C. (Author)

REGENERATION OF IRRADIATED FUELS. Quarterly rept. no. 4 (1st. quarter, 1961) on Contract [008-60-4RDB]. [1962] 57p. 2 refs. CEN R. 1987.
Order from OTS or SLA $5.60 EURAEC-82

Trans. of rept. from Centre d'Étude de l'Énergie Nucléaire, Brussels (Belgium) 15 May 61.

DESCRIPTORS: *Reactor fuels, Regeneration, *Uranium compounds, Oxides, Chlorides, Fluorides, Chlorination, Carbon tetrachloride, Oxychlorides, Corrosion research, Reaction kinetics, *Powder metallurgy, Fluidized solids, Distilling plants, Flowmeters, *Plutonium.

Contents:
Chlorination
Kinetics
Elimination of fission products
Powder technology
Technology of uranium hexafluoride
Plutonium.

SOVIET NUCLEAR REACTORS VVR AND IR: REVIEW OF SOVIET LITERATURE. AID Work Assignment no. 16. 17 Apr 62 [46]p. 9 refs. AID Rept. 62-43.
Order from OTS or SLA $4.60 62-25158

DESCRIPTORS: *Nuclear reactors, Research reactors, Light water reactors, Radioactive isotopes, Production, Design, Construction, Control systems, Reactor cores Heat exchangers, Reactor reactivity, Gamma rays, Thermal neutrons, Neutrons, Neutron capture gamma rays, Bibliography.

STEAM SINTERING OF URANIUM OXIDE. Quarterly rept. no. 2, 1 Dec 60-31 Mar 61, on Contract EUR/C/1658/603 i. [1962] 19p. 1 ref.
Order from OTS or SLA $1.60 EURAEC-56

Trans. of a rept. from FIAT, S.A., Turin (Italy) 30 Apr 61.

DESCRIPTORS: *Uranium compounds, *Oxides, *Sintering, Steam, Tests, Calorimetry, Chemical analysis, Energy, Thermal conductivity, Determination, Fuel elements, Reactor fuel elements.

STEAM SINTERING OF URANIUM DIOXIDE. Quarterl rept. no. 5, 1 Oct-31 Dec 61, on Contract 016-60-9 RD [1962] 39p. 3 refs. FN-E-19.
Order from OTS or SLA $3.60 EURAEC-268

Trans. of a rept. from FIAT, S.A., Turin (Italy) 31 Jan 62.

DESCRIPTORS: *Uranium compounds, *Dioxides, *Sintering, Steam, Pellets, Calorimetry, Tests, Fuel elements, Reactor fuel elements.

STEAM SINTERING OF URANIUM DIOXIDE. Quarterl rept. no. 6, 1 Jan-31 Mar 62, on Contract 016-60-9-RDU [1962] 78p. 5 refs. FN-E-23.
Order from OTS or SLA $7.60 EURAEC-321

Trans. of a rept. from FIAT, S. A., Turin (Italy) 30 Apr 62.

DESCRIPTORS: *Uranium compounds, *Dioxides, *Sintering, Steam, Powder metallurgy, Metallurgy, Pellets, Microanalysis, X-ray diffraction analysis, Fuel elements, Reactor fuel elements.

(See also EURAEC-268)

USE OF PLUTONIUM AS FUEL IN NUCLEAR REACTORS. Quarterly rept. no. 1, 15 July-15 60, on Contract 027-60-7 RDB. [1962] 83p. Supersedes TID-11 859.
Order from OTS or SLA $8.10 EURAEC-22

Trans. of a rept. from Société Belge pour l'Industrie Nucléaire, Brussels and Centre d'Étude de l'Énergie Nucléaire, Brussels (Belgium) n. d.

DESCRIPTORS: Nuclear reactors, *Reactor fuels, Reactor materials, *Plutonium, Chemistry, Processing, *Ceramic materials, Physical properties, Thermal expansion, Mechanical properties, Oxides, Carbides, Alloys, Reactor fuel processing.

USE OF PLUTONIUM AS FUEL IN NUCLEAR REACTORS. Quarterly rept. no. 3, 1 Jan-31 Mar 61, on Contract 027-60-7 RDB. [1962]61p.
Order from OTS or SLA $6.60 EURAEC-80

Trans. of a rept. from Société Belge pour l'Industrie Nucléaire, Brussels, Apr 61.

DESCRIPTORS: Nuclear reactors, *Reactor fuels, Reactor materials, *Plutonium, Plutonium compounds, Uranium compounds, Dioxides, *Ceramic materials, Carbides, Processing, Physical properties, Mechanical properties, Zirconium alloys, Niobium alloys, Alloys, Metallurgy, Reactor fuel processing.

(See also EURAEC-22)

Anderko, K., Jung-König, W. and others. [INVESTIGATION ON ALLOYS OF ZIRCONIUM] WITH NIOBIUM AND/OR SILICON WITH A VIEW TO THEIR USE AS CLADDING MATERIAL IN WATER-COOLED NUCLEAR REACTORS. Quarterly rept. no. 4, 1 Jan-31 Mar 61. [1962] 83p. 18 refs.
Order from OTS or SLA $8.10 EURAEC-86

Trans. of a rept. from Metallgesellschaft A. G., Frankfurt a. M. (West Germany) 17 Apr 61.

DESCRIPTORS: *Light water reactors, *Fuel elements, *Fuel cladding, Materials, *Zirconium alloys, Niobium alloys, Silicon alloys, Alloys, Solubility, Corrosion, Fatigue (Mechanics), Tests, Nuclear reactors.

Anderko, K., Jung-König, W. and others.
INVESTIGATION ON ALLOYS OF ZIRCONIUM WITH NIOBIUM AND/OR SILICON IN VIEW OF THEIR USE AS SHEATHING MATERIAL IN WATER-COOLED NUCLEAR REACTORS. Quarterly rept. no. 3. [1962] 34p. 11 refs. Supersedes TID-12 478.
Order from OTS or SLA $3.60 EURAEC-85

Trans. of a rept. from Metallgesellschaft A. G., Frankfurt a. M. (West Germany) 5 Jan 61.

DESCRIPTORS: *Nuclear reactors, Protective coverings, *Zirconium alloys, *Niobium alloys, *Silicon alloys, Annealing, Solubility, Grains (Metallurgy), Corrosion research, Creep.

Investigation of Zr-Nb system was resumed and the results of the previous investigation were confirmed. The temperature dependence of the solubility of niobium in the mixed crystal of α-zirconium was determined with spongy zirconium and with iodide zirconium as starting material. Because of the impurities contained in spongy zirconium, the equilibrium temperature of the alloy in the monotedtoid range, and the $\beta/\alpha+\beta$ phase boundary were shifted toward considerably higher temperatures compared to alloys with iodide zirconium as starting material. The martensitic platelets, which separate in alloys with niobium contents ranging between 7.5 and 17% of niobium when quenched in water, could be ascribed to the presence of hydrogen. The comparative corrosion tests in water or steam at 360, 400 and 480°C were extended. An investigation on the hydrogen absorption of a few alloys with niobium content during the corrosion process resulted in considerably lower values than those which can be observed with zircaloy-2. In a new series of tests, binary, ternary and quaternary zirconium alloys with niobium content were subjected to the action of water or steam at 350, 400 and 480°C after having been heat-treated for 10 days at 575°C or 1 hour at 650°C. The results show that heat treatment at 575°C is beneficial and that annealing below the monotectoid range has a favourable influence. (Author) (See also EURAEC-27)

Beghin, A., Bernhard, B. and Mihail, A.
STUDY OF TWO-PHASE FLOWS (AIR-WATER) WITH VORTEX CYLINDRICAL AND ANNULAR FLOWS. Special rept. no. 3 on Contract [017-60-4 RDF]. [1962] [82]p. 4 refs.
Order from OTS or SLA $8.10 EURAEC-144

Trans. of a rept. from Société Nationale d'Étude et de Construction de Moteurs d'Aviation, Suresnes (France) 12 June 61.

DESCRIPTORS: *Vortices, *Fluid flow, *Gas flow, Cylindrical bodies, Pressure, Reduction, Air, Water, Jets, Boiling water reactors, Nuclear reactors, Hydrodynamics, Tests.

This report contains the results of measurements of two-phase water-air, fall of pressure and vacuum fractions, both in conventional cases and with types of flow likely to produce an effect on the heat transfer characteristics at boiling point. The method elaborated for measuring vacuum fractions, via the measurement of the average speed of the liquid has proved to be convenient and precise, and it would be used in subsequent tests of the same nature on other geometries. (Author)

Broder, D. L., Abov, Yu. G. and others.
THE USE OF MULTIGROUP METHODS IN CALCULATING BIOLOGICAL SHIELDING [AND] CRITICAL TESTS ON A HEAVY-WATER REACTOR STAND WITH ROD-SHAPED FUEL ELEMENTS. 5 June 62 [29]p. 15 refs. FTD-TT-62-635.
Order from OTS or SLA $2.60 62-32419

Unedited rough draft trans. of #Atomnaya Energiya (USSR) 1962, v. 12, no. 2, p. 129-139 and 156-159.

DESCRIPTORS: *Nuclear reactors, *Shielding, Neutrons, Neutron flux density, Neutron spectrum, Neutron age, *Heavy water reactors, *Fuel elements, *Critical assemblies, Tests.

Dvorak, Alois.
PROBLEMS OF CORRODING STRUCTURAL MATERIALS BY LIQUID METALS (Problemy Korose Konstrukcnich Materialu Tekutymi Kovy). 31 Mar 61 [26]p. 17 refs. MCL-883; AD-259 250.
Order from OTS or SLA $2.60 62-25226

Unedited rough draft trans. of Jaderna Energie (Czechoslovakia) 1960, v. 6, no. 5, p. 155-162.

DESCRIPTORS: *Liquid metals, Corrosion, *Heat exchangers, Materials, Metals, Alloys, Corrosion-resistant alloys, *Corrosion research, Nuclear power plants, Physical properties, Chemical properties, Melting, Isotopes, Test methods, Test equipment, Corrosion inhibition, Additives, Corrosive liquids.

Report contains newest data on the specific nature of destruction of structural material by liquid (hot) metals and the actual influences of these corrosive actions. Report describes characteristic investigations of corrosion caused by hot metals, methodical principles of corrosion testing and mainly measures leading to increasing the corrosion resistance of structural materials.

Foure, C. and Mihail, A.
A STUDY ON THE SEPARATION OF WATER/STEAM MIXTURES. Special rept. no. 7 on Contract 017-60-4 RDF. [1962] [61]p.
Order from OTS or SLA $6.60 EURAEC-148

Trans. of a rept. from Société Nationale d'Étude et de Construction de Moteurs d'Aviation, Suresnes (France) Sep 61.

DESCRIPTORS: *Steam, *Water, Mixtures, Separation, *Vortices, Fluid flow, Gas flow, Hydrodynamics, Centrifuge separation, Pressure, Hydrostatic pressure, Tests, Boiling water reactors, Nuclear reactors.

The object of this study was to examine the possibilities of applying to the separation of water/steam mixtures, in boiling water reactors, a process characterized by centrifugation by small size vortices providing high rates of acceleration for moderate circulation velocities and use of conjugate coupled vortices separated by a common fluid boundary in order to reduce to a minimum the increase of friction surfaces resulting from a reduction of the cross dimensions of the vortices. The vortices were to be produced either by jets, by deflecting obstacles or by twisted strips.

Glazov, V.
NUCLEAR WEAPONS OF MODERN ARMIES. 9 Aug 62 [8]p. FTD-TT-62-1096; AD-284 078.
Order from OTS or SLA $1.10 62-33080

Unedited rough draft trans. from Krasnaya Zvezda (USSR) 1962, 12 June, p. 4.

DESCRIPTORS: *Nuclear weapons, *Military research, *Warfare, Guided missiles, Rockets, Armed forces, Armament, Atomic bombs, Nuclear warheads.

Moussez, C.
SYNTHESIS OF THERMAL TESTS. Special rept. no. 6 on Contract 017-60-4 RDF(86). [1962] [22]p.
Order from OTS or SLA $2.60 EURAEC-147

Trans. of a rept. from Société Nationale d'Étude et de Construction de Moteurs d'Aviation, Suresnes (France) July 61.

DESCRIPTORS: *Heat transfer, Fluid flow, *Boiling, Temperature, Pressure, Reduction, Vortices, Test methods, Tests, Boiling water reactors, Nuclear reactors.

Pasek, M.
LIQUID METAL RESEARCH IN THE INSTITUTE OF NUCLEAR RESEARCH IN 1956-58. 13 Feb 61 [20]p. 4 refs. MCL-719; AD-257 693.
Order from OTS or SLA $1.60 62-25225

Unedited rough draft trans. of Jaderna Energie (Czechoslovakia) 1959, v. 5, no. 11, p. 373-377.

DESCRIPTORS: *Liquid metals, Liquid metal pumps, Nuclear power plants, Radioactivity, Fluid flow, Viscosity, Circular coils, Heat exchangers, *Coolants, Electromagnetic pumps, *Heat transfer, Measurement.

The results of research work in liquid metals are analyzed. These results are focused mainly on tests of pumping and circulating of liquid metals in cooling systems, on studies of heat transfer, and on the measurements of flow and viscosity of liquid metals. (Author)

Rosuel, A. and Sourioux, G.
INFLUENCE ON BURN-OUT FLUX OF VORTICES INDUCED IN BOILING WATER AT ATMOSPHERIC PRESSURE. Special rept. no. 5 on Contract [017-60-4 RDF]. [1962] 147p.
Order from OTS or SLA $11.00 EURAEC-146

Trans. of a rept. from Société Nationale d'Étude et de Construction de Moteurs d'Aviation, Suresnes (France) [1961].

DESCRIPTORS: *Vortices, *Heat transfer, Boiling, Water, Pressure, Fluid flow, Boiling water reactors, Nuclear reactors.

Schmets, J. and Heremans, R.
DECONTAMINATION FACTOR OBTAINED DURING RETREATMENT BY VOLATILIZATION OF IRRADIATED URANIUM OXIDE. Special rept. no. 2 on Contract 008-60-4 RDB. [1962] 49p. CEN BLG-58.
Order from OTS or SLA $4.60 EURAEC-165

Trans. of rept. from Centre d'Étude de l'Énergie Nucléaire, Brussels (Belgium) Sep 61.

DESCRIPTORS: *Uranium compounds, *Oxides, *Fission products, *Decontamination, Vapor pressure, Oxidation, Reduction, Fluorination, Rare earths, Ruthenium, Niobium, Iodine, Molybdenum, Tellurium, Neptunium, Purification.

Schmets, J. and others.
RETREATMENT OF IRRADIATED FUELS. Quarterly rept. no. 7, 1 Oct-31 Dec 61, on Contract 049-61-4 RDB [1962] 29p.
Order from OTS or SLA $2.60 EURAEC-263

Trans. of a rept. from Centre d'Étude de l'Énergie Nucléaire, Mol (Belgium) n.d.

DESCRIPTORS: Nuclear reactors, *Reactor fuels, *Reactor fuel processing, Chlorination, Uranium compounds, Chlorides, Fluorides, Chemical reactions, Reaction kinetics, Fission products, Decontamination, Powder metallurgy, Plutonium.

Yaroshevich, O. I.
EXAMINATION OF HEAT TRANSFER PROCESSES IN HEAT-PRODUCING ELEMENTS OF NUCLEAR REACTORS BY METHOD OF HYDRAULIC MODELING. 20 Aug 62 [10]p. FTD-TT-62-1068. AD-286 631.
Order from OTS or SLA $1.10 62-33640

Unedited rough draft trans. of Inzhenerno-Fizicheskii Zhurnal (USSR) 1960, v. 3, no. 5, p. 81-85.

DESCRIPTORS: *Nuclear reactors, Heat exchangers, *Heat transfer, Thermal stresses, Reactor cores, Reactor reactivity, *Hydraulic models, Light water reactors.

The article deals with methods and results of examining the unsteady temperature fields of heat-producing elements (HPE) of water-moderated, water-cooled nuclear reactors. By means of the hydraulic modelling were found temperature fields of HPE, taking into account the variation in the heat conduction coefficient of HPE materials with temperature, changes in dimensions of HPE on heating, and the effect of the negative temperature coefficient of reactivity. (Author)

Radioactivity

Andreeva, E. A.
NATURAL SOIL RADIOACTIVITY AND TOTAL POTASSIUM DETERMINATION BY THE RADIOMETRIC METHOD (Estestvennaya Radioaktivnosti' Pochv i Opredelenie Valovogo Kaliya Radiometricheskim Metodom). 17 May 62 [13]p. 16 refs. NIH no. 5-17-62.
Order from OTS or SLA $1.60 62-25138

Trans. of #Pochvovedenie (USSR) 1960, no. 5, p. 21-29.

DESCRIPTORS: *Soils, *Radioactivity, *Potassium, Determination, *Radiation counters, Beta particles, Radiochemistry.

Buldakov, L. A., Moskalov, Yu. I., and Semenov, D. I.
RÉPARTITION DU CÉRIUM ET DU RUTHÉNIUM DANS LES ORGANES DU RAT APRES INHALATION [Distribution of Cerium and Ruthenium in the Organs of the Rat Following Their Administration by Inhalation] tr. by J. Remy. 15 Feb 62 [11]p. CEA Trans. no. R 1493 (text in French).
Order from OTS or SLA $1.60 62-25086

Trans. in French of Med[itsinskaya] Radiol[ogiya] (USSR) 1960 [v. 5, no. 6] p. 42-47.
Another trans. is available in English from OTS or SLA $19.75, in 60-41452, JPRS-5649, 30 Sep 60 [278]p.

DESCRIPTORS: Distribution, Absorption, *Cerium, *Ruthenium, Respiration, *Lungs, *Excretion, Skin, Intestines, Radioactive isotopes.

Rudakov, V. P.
ANGULAR BETA-GAMMA CORRELATION IN THE DECAY OF La-140 AND Ce-141. [1961] [6]p. 7 refs.
Order from OTS or SLA $1.10 AEC-tr-4720

Trans. of mono. Uglovaya β - γ-Korrelyatsiya pri Raspade [La^{140} i Ce^{141}] Moscow, 1960 [6p].

DESCRIPTORS: *Radioactive isotopes, *Lanthanum, *Cerium, *Alpha decay, *Beta decay, Radioactive decay, Half life, Nuclear spectroscopy, Nuclear reactions.

Waste Disposal

RESEARCH PROGRAM CONCERNING WATER AND RADIOACTIVE RESIDUE TREATMENT. Quarterly rept. no. 6, July-Sep 61. [1962] 42p. CEN R. 2055.
Order from OTS or SLA $4.60 EURAEC-187

Trans. of rept. from Centre d'Étude de l'Énergie Nucléaire, Brussels (Belgium) Oct 61.

DESCRIPTORS: *Hydrology, Radioactive waste, *Radioactive waste disposal, Water, *Geology, Physical chemistry, Solubility, Gases, Purification, Incinerators.

Dejonghe, P. and others.
WASTE DISPOSAL SERVICE. Quarterly report no. 3, Oct-Dec 60. [1962] 18p.
Order from OTS or SLA $1.60 EURAEC-84

Trans. of a rept. from Centre d'Étude de l'Énergie Nucléaire, Brussels (Belgium) [1961].

DESCRIPTORS: Radioactive waste, *Radioactive waste disposal, Hydrology, Geology, Soils, Tracer studies, Physical chemistry, Air, Cleaning, Incinerators, Solubility, Radioactive isotopes, Migration length.

Contents:
Incineration and air cleaning
Insolubilization of radioactive concentrates
Ultimate disposal of radioactive wastes in the ground

PERSONNEL SUPPLIES AND PERSONAL EQUIPMENT

Getmanskii, I. K., Panchenko, A. P. and others.
LIQUID SHAMPOO BASED ON PURIFIED ALKYL SULPHATES OF SECONDARY SYNTHETIC ALCOHOLS (Zhidkii Shampun' na Osnove Ochishchennykh Alkisul'fatov Vtorichnykh Sintetticheskikh Spirtov). Aug 62 [4]p. RTS 2115.
Order from OTS or SLA $1.10 62-32490

Trans. of Masloboino-Zhirovaya Prom[yshlennost'] (USSR) 1961, v. 27, no. 9, p. 17-18.

DESCRIPTORS: *Soaps, Production, Alkyl radicals, *Sulfates, Alcohols, Wetting agents, Surface tension, Hair.

Linz, Georg.
BALL-POINT PEN, tr. by J. B. 21 Aug 62, 2p. (figs. omitted).
Order from OTS or SLA $1.10 62-32918

Trans. of German patent 827,909, cl. 70b, gr. 5/20, pat. from 26 Aug 49, grant announced 6 Dec 51, pub. 14 Jan 52.

DESCRIPTORS: *Pens, Design, Materials.

PHYSICS

ABSTRACTS PERTAINING TO COMMUNIST CHINA IN SOVIET ABSTRACTS JOURNALS NO. 44 (PHYSICS SERIES) (MECHANICS SERIES) (ASTRONOMY SERIES). 3 Dec 62 [36]p. JPRS: 16460.
Order from OTS or SLA $3.60 63-13374

Trans. of selected abstracts from Referativnyi Zhurnal. Fizika (USSR) 1962, nos. 5-8; Referativnyi Zhurnal. Mekhanika (USSR) 1961, no. 11; Referativnyi Zhurnal. Astronomiya i Geodeziya (USSR) 1961 nos. 2 10-12.

DESCRIPTORS: *Abstracts, *Physics, *Mechanics, *Astronomy, Spectroscopy, Molecular structure, Nuclear physics, Plasma physics, Electronics, Electron tubes, Dielectrics, Semiconductors, Polymers, Elasticity, Plasticity, Geodesics, Astrophysics, *China.

Contents:
Theoretical physics
Physics of the atom and molecule; spectroscopy
Optics; spectral analysis; acoustics
High molecular substances and polymers
Dielectrics and semiconductors
Kinetics of crystallization and recrystallization
Metals
Radiophysics
Nuclear physics; plasma physics
Physical basis of electronics
Physical phenomena in living matter
Electron tubes
Dielectric and semiconductor polymers
Radioastronomy

General mechanics
Hydromechanics
Theory of elasticity
Plasticity; creep; soil mechanics
Strength of structures
Elasticity and plasticity
Engineering geodesy
Photographic astrometry
Astrometry
General problems
Cosmogony and cosmology

SOVIET PATENTS ON ACOUSTICAL AND MAGNETIC MEASURING INSTRUMENTS, 1951-61. 13 Nov 62 [207]p. JPRS: 16134.
Order from OTS or SLA $14.00 63-13089

DESCRIPTORS: *Patents, Invention, *Acoustics, *Magnetism, *Instrumentation, *Magnetometers, Synchro receivers, Gradiometers, Frequency, Amplifiers, Signal-to-noise ratio, Direct current, Feedback, Harmonic oscillators, Electric filters, Magnetic fields, Voltage, Electric currents, Speech, Harmonic analysis, Underwater equipment, Remote control systems, Nuclear magnetic resonance, Electrets, Microphones, Quartz resonators, Geophysical prospecting, Radio waves, Seismic waves, Radiosondes, Magnetic cores, Audiofrequency, Spectrum analyzers, Diffraction, Piezoelectric crystals, Ferromagnetic materials, Magnetic properties, Noise (Radio), Submarines, Coaxial cables, Harmonic analyzers, Hydrophones, Terrestrial magnetism, Nuclear resonance, Frequency meters, Seismological stations, Underwater, Communication systems, Nickel compounds, Ferrites, Magnetostriction transducers, Magnetostrictive resonators, Ultrasonic radiation, Sound, Cylindrical bodies, Barium compound, Titanates, Crystals, Polarization, Phase measurement, Tuning devices, Inductance, Gages, Coils, Pulse analyzers, Aerial reconnaissance, Depth finding, Echo ranging, Piezoelectric materials, Ceramic materials, Delay lines, Band-pass filters, Ships, Radio interference, Phase detectors, Time interval counters, Solids, Ferroelectric materials, Correlation techniques, Nickel, Lead, Lithium, Zinc, Cobalt, Ferrites, Signals, Interference, Electrical equipment.

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A device for the measurement of magnetic fields, 117 065
A piezoelectric measuring sound-receiver (synchrophone), 117 087
(for rest of abstract see TT, v. 9, p.
A geomagnetic gradiometer, 117 093
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A device for raising or lowering the frequency of harmonic oscillations, 117 716
A pectinate filter, 117 830
A magnetic probe for the measurement of weak magnetic fields, 117 957
A device for the amplification of low voltages of direct and alternating currents, 118 055
A method for the harmonic analysis of an envelope current spectrum of a vocal signal, 118 630
A method for remote control operation of a bilateral underwater amplifier, 118 861
A device for the measurement of magnetic fields with use of the method of nuclear magnetic resonance, 119 250
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A method and device for calibrating phonometers, 120 659

A method for measuring the equivalent inductance and capacitance of a piezoelectric resonator, 122 183
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A seismographic bar with piezoelectric seismic pick-ups for marine seismoreconnaissance work, 122 616
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Method of comparing noise signals, 124 013
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Method of measurement of intensity of ultrasonic sound, 133 630
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Method of electronic automatic search of frequency,

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Induction gage for measuring angular displacements, 135 789
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Magnetometer, 144 546
Method for measuring the speed of sound in solid specimens of little thickness, 144 619
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Niclel-lead-lithium ferrite with an elementary magnetic permeability equal to 10, 145 942
Zinc-lithium cobaltic ferrite, 145 943
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Supplementary stage of hermetization, 146 374
##Other translations of nos. 122 780 and 128 905 are available from RIS $4.00 as RIS G-236 and from OTS or SLA $1.10 as 61-23837, MCL-893. 2 May 61 [2]p.

Ignatenko, V. P.
CALCULATING THE CONDUCTIVITY OF ALKALI-METAL AND COPPER VAPORS. 1 Aug 62 [7]p. 6 refs. FTD-TT-62-1020; AD-284 149.
Order from OTS or SLA $1.10 62-33396

Unedited rough draft trans. of #Zhurnal Tekhnicheskoi Fiziki (USSR) 1962, v. 32, no. 1, p. 129-132.

DESCRIPTORS: *Alkali metals, Copper, Vapors, Ions, Electrical conductance, Mathematical analysis.

Riezler, W. and Hardt, L.
TEMPERATURE MEASUREMENT ON GRINDING SPARKS. [1962] 9p. (figs. omitted) 2 refs.
Order from SLA $1.10 62-16540

Trans. of Z[ei]tschr[ift] f[ür] Angew[andte] Physik (West Germany) 1954, v. 6, p. 497-499.

DESCRIPTORS: *Steel, Machining, *Sparks, *Temperature, Grinders, Electron multipliers, Black-body radiation, Thermal radiation, Measurement.

Tolstoi, N. A.
KINETICS OF INFRARED LUMINESCENCE OF COPPER OXIDE. II. THEORETICAL INTERPRETATION, tr. by B. W. Kuvshinoff. 27 Aug 62, 16p. 7 refs. APL/JHU TG 230-T326.
Order from OTS $0.50 63-11515

Trans. of Optika i Spektroskopiya (USSR) 1957, v. 2, no. 2, p. 210-219.

DESCRIPTORS: *Copper compounds, Oxides, *Infrared radiation, *Luminescence, Theory, Photoconductivity.

Three possible interpretations are discussed of the anomalous time-temperature increase in the relaxation of Cu_2O luminescence: (1) the effect of temperature on mobility, (2) the effect of the "heat barrier," and (3) the exciton mechanism of luminescence. The last is considered to be the most likely. (Author)
(Physics, TT, v. 9, no. 3)

Electricity and Magnetism

MAGNETIC SHEETS. Nov 62.
Order from BISI £10 BISI-2913

Trans. of Ateliers de Constructions Electriques de Charleroi (France). Report-LR 62104/120/1 & 2, n.p., Mar 62.

DESCRIPTORS: *Electric motors, *Magnetic materials, Sheets, Magnetic properties, Measurement, Standards, Alternating current.

Al'tman, A. B., Gladyshev, P. A., and Lasis, G. I.
MAGNETIC PROPERTIES OF PERMANENT MAGNETS FROM POWDERS. Jan 62 [12]p. (figs. tables omitted) 6 refs. [DSIR] NLL M. 3645.
Order from OTS or SLA $1.60 62-25313

Trans. of Vestnik Elektroprom[yshlennost'] (USSR) 1961, v. 32, no. 2, p. 32-41.

DESCRIPTORS: *Magnets, Magnetic properties, Stability, Powders, Sintered alloys, Magnetic fields, Temperature, Classification, Materials.

Dannöhl, W.
DEVELOPMENT AND STATUS OF PERMANENT MAGNET MATERIAL. [1962] 28p. (tables, figs. refs. omitted).
Order from SLA $2.60 62-16946

Trans. of Stahl und Eisen (West Germany) 1953, v. 73 [no. 2] p. 65-80 (V[erein] D[eutscher] E[isenhuttenleüte (West Germany). [Berichte]-819).

DESCRIPTORS: *Magnetic materials, Martensite, Alloys, Oxides, Powder metals, Magnetic properties, Classification, Magnets.

Dekhtyar, I. Ya. and Madatova, E. G.
CHANGE IN COERCIVE FORCE DURING CYCLIC HEAT-TREATMENT. Feb 62 [15]p. (8 refs. equations omitted) 7 refs. [DSIR] NLL M. 3639.
Order from OTS or SLA $1.60 62-25308

Trans. of Akad[emiya] Nauk URSR [Kiev]. Inst[ytut] Metallofiz[yky]. Sbornik Nauch[nykh] Rabot, 1961, v. 12, p. 73-87.

DESCRIPTORS: *Heat treatment, *Coercimeters, Nickel, Lattices, Nuclei, Impurities, Dislocations, Structures, Mathematical analysis, *Ferromagnetism, *Magnetic materials.

Nalecz, Maciej and Ziomecki, Henryk.
MAGNETIC-INDUCTION METER EMPLOYING THE HALL EFFECT. 11 Apr 61, 9p. AID rept. 61-43; AD-255 785.
Order from OTS or SLA $1.10 62-25210

Abstract trans. of Przeglad Elektrotechniczy (Poland) 1960 [v. 36] no. 11, p. 469-473.

DESCRIPTORS: Poland, *Fluxmeters, *Magnetic fields, Measurement, *Inductance, Magnetic effects, *Semiconductors, Design, *Hall effect.

Electronics

Levin, G. E.
METHOD OF CYCLICALLY DEFLECTING AN ELECTRON BEAM. 20 Aug 62 [4]p. FTD-TT-62-1104.
Order from OTS or SLA $1.10 62-33544

Unedited rough draft trans. of [Soviet] patent 140122 (684959/26) 1960, p. 1-2.

DESCRIPTORS: *Electron beams, *Deflection, Electric fields, Magnetic fields, Electromagnetic fields, Magnetic effects.

For the purpose of increasing the sensitivity toward deflection of an electron-ray instrument, the electron beam is passed repeatedly through one deflecting field (electric, magnetic or combined) with the aid of an auxiliary magnetic field. (Author)

Zinchenko, N. S. and Motorenko, A. P.
A METHOD FOR ION FOCUSING OF AN ELECTRON STREAM IN A HIGH VACUUM. 31 Aug 62 [4]p. FTD-TT-62-966; AD-284 145.
Order from OTS or SLA $1.10 62-33056

Unedited rough draft trans. of Soviet patent 139001 (668747/26) 2 June 60.

DESCRIPTORS: *Electron beams, Vacuum systems, *Ions, *Focusing, Ion bombardment, Electrostatic fields, Space charges.

The method of ion focusing of an electron beam in a high vacuum is described. It differs in that, in order to simplify the electron-optical system, reduce bombarding of the cathode by positive ions and to ensure low heating of the collector, the electron stream is passed in a decelerating electrostatic field. The field gradient is chosen such that the negative space charge is compensated in each cross section of the stream. (Author)

Molecular Physics and Spectroscopy

Carlsson, C. G[eorg] and Rynninger, R[oland].
ELECTRICAL AGGREGATES FOR THE PRODUCTION OF LIGHT IN SPECTRAL ANALYSIS. [1962] 18p. (7 refs. figs. omitted) 13 refs.
Order from SLA $1.60 62-16803

Trans. of Jernkontoret [Stockholm]. Annaler (Sweden) 1947 [v. 131, no. 1] p. 1-25.
Another trans. is available from SLA mi$2.40, ph$3.30 as 60-18679 [May 47] 20p.

DESCRIPTORS: *Spectrum analyzers, Lighting equipment, Electrical equipment, *Electric discharges, Sparks, *Light.

Generalov, N. A.
VIBRATIONAL RELAXATION IN OXYGEN AT HIGH TEMPERATURES, I, tr. by B. W. Kuvshinoff.
6 Sep 62, 13p. 12 refs. APL/JHU TG 230-T330.
Order from OTS $0.50 63-11506

Trans. of Moscow U. Vestnik. Seriya 3: Fizika, Astronomiya (USSR) 1962 [v. 17] no. 2, p. 51-59.

DESCRIPTORS: *Oxygen, Molecules, Vibration, Relaxation time, Shock waves, *Shock tubes.

The method of measuring the vibrational relaxation time of oxygen molecules behind a shock front is described. The vibrational excitation time τ for O_2 varies from 2.5 to 0.17 usec with change in temperature from 2500 to 10,000°K. The dependence of log τ on $T^{-1/3}$ agrees with the Landau-Teller theory. (Author)

Kleinberg, A. V.
SCATTERING OF THE VIBRATION QUANTA OF THE EXCITED NITRIC OXIDE MOLECULE FOLLOWING COLLISION WITH OTHER MOLECULES (Rasseyanie Kolebatel'nykh Kvantov Vozbuzhdennoi Molekuly Okisi Azota pri Soudareniyakh s Drugimi Molekulami).
8 Mar 62 [14]p. 19 refs. NBS: S-103920-62; JPRS: R-2212-D.
Order from OTS or SLA $1.60 62-25035

Trans. of Optika i Spektroskopiya (USSR) 1956, v. 1, no. 4, p. 469-477.

DESCRIPTORS: Gases, *Nitrogen compounds, Oxides, Vibration, *Scattering, Quantum statistics, Probability, *Fluorescence, Spectroscopy.

A study is made of the redistribution of intensities in the spectral bands of the fluorescence of gaseous nitric

oxide which took place upon the addition of other gases. The quantitative study of this effect made possible a calculation of the probability of dispersal of the vibration quanta of the disturbed molecule of NO upon collision with various neighbors. The study also concerned the extinction of fluorescence in NO upon the addition of other gases, and calculations were made of the probability of extinction. (Author)

Optics

Khudyakova, E.
"INTROSCOPY" NEW VICTORY OF SOVIET SCIENCE. 29 June 62 [5]p. FTD-TT-62-857; AD-283 930.
Order from OTS or SLA $1.10 62-32975

Unedited rough draft from Izvestiya (USSR) 1959, no. 95(13022) 22 Apr, p. 1.

DESCRIPTORS: *Electrostatics, *Electromagnetic lenses, *Optical images, *Infrared images, *Image converter tubes, Electrons, Fluorescent screens, Liquids, Solids, Infrared image tubes, Infrared radiation.

A method for studying liquid and solid bodies is presented. A stream of penetrating rays were passed through an object and, having fallen into the objective, it forms, as in an ordinary microscope. To make the image visible, an image which carries this stream, is used as a converter. The image in it is merely a courier, and is transmitted from the stream of invisible radiation to the electron stream. After proper processing with electrostatic or magnetic lenses the electron stream falls on the fluorescent screen, similar to a television screen. An image of the translucent body originates. If this body is homogeneous then its image in the introscope is transparent. But the slightest defect or foreign inclusions make their presence conspicuous. The form and position of these images on the screen correspond absolutely to the form and disposition of defects of admixtures in the investigated body. (Author)

Markov, M. N.
THE COMPARISON OF LOW-INERTIA DETECTORS OF INFRARED RADIATION. [1962] 10p. 17 refs.
Order from OTS or SLA $1.10 62-18258

Trans. of Optika i Spektroskopiya (USSR) 1957, v. 3 no. 2, p. 158-161.
Another trans. is available from SLA as R-3718.

DESCRIPTORS: *Infrared detectors, Detectors, Inertia, Test methods.

Mirau, Andre.
POSITION-FINDING DEVICE. 15 Aug 52, 2p. (figs. omitted).
Order from SLA $1.10 62-18419

Trans. of Revue d'Optique [Théorique et Instrumentale] (France) 1952, v. 31 [no. 10] p. 457-458.

DESCRIPTORS: *Position finding, Micrometers, Optical instruments, Optical images.

Sawaki, Tsukasa and Iwata, Minoru.
ACHROMATIZATION OF ANTIREFLECTION COATINGS: TREATMENT ACCORDING TO THE ELECTRICAL NETWORK THEORY, tr. by H. J. Kondo. 1962, 23p. 43 refs. NRCC Technical Trans. 1039.
Order from NRCC $1.50 NRCC C-4152

Trans. of Oyô Butsuri (Japan) 1955, v. 24, no. 2, p. 49-56.

DESCRIPTORS: Optical materials, *Optical coatings, Thin films, Theory, Reflection, Refractive index.

Solid State Physics

CRYSTAL IMPERFECTIONS IN SEMICONDUCTORS: BIBLIOGRAPHY [SOVIET] 1959-June 62. [Rept. on] AID Work Assignment no. 43. 22 Aug 62 [14]p. 98 refs. AID rept. 62-120; AD-284 028.
Order from OTS or SLA $1.60 62-33101

DESCRIPTORS: *Bibliography, *Semiconductors, *Crystal structure, Electron microscopy, X-ray diffraction analysis.

GROWTH OF UO_2 SINGLE CRYSTALS. Rept. 1, 1 Oct-31 Dec 61, on Contract 055-61-9 RDB. [1961] 9p. CEN R. 2079.
Order from OTS or SLA $1.60 EURAEC-245

Trans. of rept. from Centre d'Étude de l'Énergie Nucléaire, Brussels (Belgium) [1962].

DESCRIPTORS: *Uranium compounds, *Dioxides, *Crystallization, Single crystals, Growth, Sublimation, Crystals, Impurities.

Work was performed on two main problems concerning UO_2 single crystal preparation by sublimation. Improvement of the furnace arrangement in order to avoid tantalum contamination of the crystals and the preparation of single crystals doped with Nb_2O_5 and Al_2O_3. During the past period, many runs were made to determine the optimum conditions for UO_2 crystal growth from a molten salt solution of uranyl chloride. Also polishing experiments of the cathode surface were performed to study the influence on the nucleation. UO_2 crystals were also grown from the vapour phase. (Author)

STRUCTURE OF SOVIET MASER AND LASER RESEARCH. [Rept. on] AID Work Assignment no. 14. 17 Aug 62 [35]p. 153 refs. AID rept. 62-84; AD-284 025.
Order from OTS or SLA $3.60 62-33105

DESCRIPTORS: *Masers, *Lasers, Scientific research, *Bibliography, Information retrieval, Correlation techniques, Semiconductors, Paramagnetism, Paramagnetic crystals, Gas discharges, Molecular beams.

Amelinckx, S., Willis, A. and others.
SWELLING OF URANIUM. Quarterly progress report no. 3, Apr-June 61, on Contract EUR/C/1988/1/60 f. [1962] 42p. 29 refs. CEN R. 2026;
Order from OTS or SLA $4.60 EURAEC-129

Trans. of a rept. from Centre d'Étude de l'Énergie Nucléaire, Brussels (Belgium) Aug 61.

DESCRIPTORS: *Uranium, Physical properties, *Platinum, Dislocations, Radiation effects, Crystal structure, *Electron microscopy, Fission products, Foils, Preparation, Heat treatment, Grains (Metallurgy), Deformation, Neutron bombardment.

A transmission electron microscopy study was made of the distribution of dislocations and radiation damage in platinum. The results discussed form part of a research program upon a study of irradiation induced defects in metals particularly in uranium. The purpose was to study a metal of simple crystal structure to learn by means of "Model 1 versuche" about the defect structure of metals in general. Thin beaten platinum foils, transparent to electrons as received, were used. The foils were annealed and irradiated in contact with uranium. In annealed unirradiated samples the dislocations are arranged in a well developed substructure. Various types of dislocation configurations could be observed. Indirect evidence is given that the dislocations in platinum are dissociated. Part of the dislocations are arranged almost perpendicularly to the plane of the foil. The type and the contrast effect of such dislocations are discussed. The irradiated foils showed consistently black dots. It is suggested that these dots are due to clustering of defects introduced during irradiation. It was found that the dots are not arranged at random within the bulk of the grain but are sometimes on straight lines. The linear arrangement of the dots is interpreted to represent the track of fission fragments crossing the foil at a very small angle of incidence with the foil. The dots were observed to be preferentially formed on coherent twin boundaries. This phenomenon gives rather strong evidence that focusing collisions take place in platinum. (Author)

Bonse, U.
MEASUREMENTS OF ANOMALOUS TRANSMISSION AND X-RAY REFLECTION ON HIGH-QUALITY GERMANIUM SINGLE CRYSTALS IN THE BRAGG CASE OF INTERFERENCE: COMPARISON WITH THE DYNAMIC THEORY OF X-RAY INTERFERENCES. [1962] [32]p. 33 refs.
Order from SLA $3.60 62-14459

Trans. of Zeitschrift für Physik (West Germany) 1961, v. 161, no. 3, p. 310-329.

DESCRIPTORS: *Single crystals, *Germanium, X-ray diffraction analysis, Transmission, Reflection, Interference, Dynamics, Theory.

Fastov, N. S.
ON THE THERMODYNAMICS OF SOLID INTRUSION SOLUTIONS WITH BODY-CENTERED CUBIC LATTICE. 24 July 62 [16]p. 7 refs. FTD-TT-62-511; AD 283 886.
Order from OTS or SLA $1.60 62-32692

Unedited rough draft trans. of #Fizika Metallov i Metallovedenie (USSR) 1961, v. 11, no. 6, p. 856-863.

DESCRIPTORS: *Elasticity, *Crystal structure, *Lattices, Solids, Thermodynamics.

Discussed are the properties of an elastically deformed solid intrusion solution with body-centered cubic lattice, unbalanced with respect to energetically different positions of the atoms of the dissolved substance. Terms were found for nonequilibrium and equilibrium free energies of such a solution. It is shown, that the equilibrium Young modulus of the monocrystal decreases with the increase in concentrations at small stresses and does not depend upon the concentrations at greater stresses. The chemical potential of the dissolved particles at greater stresses does depend not only upon the relative change in volume, but also upon relative elongation. (Author)

Li, Guo-dong, Zhai, Ching-yong and others.
STUDY OF THE MAGNETIC PROPERTIES OF THE YTTRIUM-YTTERBIUM GARNET SYSTEM. 8 Aug 62 [14]p. 15 refs. FTD-TT-61-114.
Order from OTS or SLA $1.60 62-32994

Unedited rough draft trans. of Wu Li Hsüeh Pao (Chinese People's Republic) 1960, v. 16, no. 5, p. 281-288.

DESCRIPTORS: *Yttrium, *Ytterbium, *Garnets, Crystals, Magnetic properties, Lattices, X-ray diffraction analysis, Microwave equipment.

The entire system $Y_{3-x}Yb_xFe_5O_{12}$ (from x = 0 to x = 3) is a single-phase solid solution with garnet structure. Using the method of co-precipitation, and sintering in oxygen, it is generally possible to obtain samples with high bulk density resistivity. These properties are suitable to the demands of microwave application. (Author)

Miselyuk, E. G., Kosenko, V. E. and others.
SOLUBILITY AND DIFFUSION OF IMPURITIES IN GERMANIUM (Issledovanie Diffuzii i Rastvorimosti Nekotorykh Primesei v Germanii). [1962] [9]p. 11 refs.
Order from OTS or SLA $1.10 AEC-tr-5148

Trans. of mono. Conference on the Use of Radioisotopes in the Physical Sciences and Industry, Copenhagen, 6-17 Sep 60. Proceedings, Vienna, 1962, p. 287-294.

DESCRIPTORS: *Germanium, Single crystals, Impurities, Radioactive isotopes, Silver, Iron, Cadmium, Tellurium, Tantalium, Solubility, Diffusion.

The diffusion process and solubility of the corresponding elements in germanium were studied with the radioisotopes Ag^{110}, Fe^{59}, Cd^{115}, Te^{127}, and Ta^{182}. Studies were carried out with scintillation counters on monocrystalline germanium of high purity with a residual ingredient concentration of $\lesssim 5 \times 10^{12}$ cm^{-3} at a temperature range from 700 to 930°C. The volume diffusion coefficients for Ag, Fe, Cd and Ta were found to be respectively (at 800°C) 8×10^{-7}, 1.6×10^{-6}, 4.2×10^{-12} cm^2/sec. From the solubility temperatures their maximum values were fixed at $C_{Ag} = 1.1 \times 10^{15}$ cm^{-3}, $C_{Fe} = 1.5 \times 10^{15}$ cm^{-3}, $C_{Cd} = 4 \times 10^{18}$ cm^{-3} and $C_{Ta} = 2 \times 10^{18}$ cm^{-3}. The coefficient of surface diffu-

sion for Ag was measured and proved to be higher than the volume diffusion coefficient by one order of magnitude at 850°C and six orders of magnitude at 200°C. An intense evaporation of germanium, 2 orders of magnitude higher than in a vacuum, was observed in tellurium fumes. (Author)

Pleskov, Yu. V. and Tyagai, V. A.
ON THE DISTRIBUTION OF POTENTIAL AT A GERMANIUM-ELECTROLYTE SOLUTION BOUNDARY. [1962] 7p. 8 refs.
Order from OTS or SLA $1.10 62-16183

Trans. of A[kademiya] N[auk] SSSR. Doklady, 1961, v. 141, no. 5, p. 1135-1138.

DESCRIPTORS: *Semiconductors, *Germanium, *Electrolytes, Solutions, Electric potential, Distribution, Electrical conductance, Resistance, Diffusion.

Rebinder, P. A., Likhtman, V. I., and Kochanova, L. A.
ADSORPTION EFFECT OF STRENGTH REDUCTION IN METAL SINGLE CRYSTALS AND SPONTANEOUS DISPERSION IN A LIQUID MEDIUM (Adsorbtsionnoe Ponizhenie Prochnosti Metallicheskikh Monokristallov i Samoproizvol'noe Dispergirovanie v Zhidkoi Srede). [1962] [13]p. (foreign text included) 26 refs.
Order from OTS or SLA $1.60 62-16665

Trans. of Akademiya Nauk SSSR. Doklady, 1956, v. 111, no. 6, p. 1278-1281.
Another trans. is available from ATS $10.40 as ATS-73N50R [1961] 5p.

DESCRIPTORS: *Single crystals, *Metallic crystals, Tensile properties, Liquids, *Adsorption.

Veselovskii, P. F.
THE MEASUREMENT OF . AND / OF SOLID DIELECTRIC BY CENTIMETER RADIO WAVES IN THE TEMPERATURE RANGE OF -100 TO +100°C. [1962] [18]p. (figs. omitted) 16 refs.
Order from OTS or SLA $1.60 62-16724

Trans. from Zhurnal Tekhnicheskoi Fiziki (USSR) 1955, v. 25, no. 4.

DESCRIPTORS: Solids, *Dielectrics, Dielectric properties, *Radio waves, Propagation, Wave transmission, Waveguides, Cavity resonators, Temperature.

Theoretical Physics

THE POLISH HYDROMAGNETIC GENERATOR. 26 Feb 62 [4]p. FTD-TT-62-81.
Order from OTS or SLA $1.10 62-23660

Unedited rough draft trans. of Znanie-Sila (USSR) 1961 [v. 36] no. 9, p. 43.

DESCRIPTORS: *Generators, *Magnetohydrodynamics, Operation, Poland.

Gabovich, M. G. and Romanyuk, L. I.
EJECTION OF PLASMA FROM AN ELECTRODELESS PULSE DISCHARGE IN A VACUUM. 1 Mar 62 [11]p. 6 refs. FTD-TT-61-345.
Order from OTS or SLA $1.60 62-23671

Unedited rough draft trans. of Ukrayins'kyi Fizychnyi Zhurnal (USSR) 1961, v. 6, no. 4, p. 461-467.

DESCRIPTORS: *Plasma physics, *Plasma jets, Ejection, *Gas discharges, Vacuum systems, Gas ionization.

An experimental study was made of plasma ejected from an electrodeless pulse discharge in a vacuum through a narrow channel dividing the two regions. The ejected plasma is characterized by a velocity of approximately 8×10^6 cm/sec, by an ionic flux density at the outlet of the channel of over 100 a/cm^2, by an ion concentration at this spot of the order of 1×10^{14} cm^{-3}, and by periodic fluctuations of its potential. (Author)

Gertsenshtein, M. E.
WAVE RESONANCE OF LIGHT AND GRAVITATIONAL WAVES. 23 Feb 62 [6]p. 3 refs. FTD-TT-62-79.
Order from OTS or SLA $1.10 62-23686

Unedited rough draft trans. of #Zhurnal Eksperimental'noi i Teoreticheskoi Fiziki (USSR) 1961, v. 41, no. 1, p. 113-114.

DESCRIPTORS: *Light, Propagation, *Gravity, *Resonance, Electromagnetic fields, Tensor analysis, Stars, Electromagnetic waves.

An evaluation was made of the energy of gravitational waves, excited during the propagation of light in a constant magnetic or electric field. (Author)

Gol'denblatt, I. I.
THE "CLOCK PARADOX" IN THE THEORY OF RELATIVITY, tr. by B. W. Kuvshinoff. 17 Sep 62, 8p. 7 refs. APL/JHU TG 230-T333.
Order from OTS $0.50 63-11516

Trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Fizika (USSR) 1961, no. 6, p. 38-42.

DESCRIPTORS: *Relativity theory, Time, *Time-lag theory, Clocks.

The familiar "clock paradox" in the study of relativity is analyzed on the basis of a detailed study of the behavior of time in comparable coordinate systems. (Author)

Ivanenko, D. D.
DO GRAVITATION WAVES EXIST? 25 July 62 [16]p. FTD-TT-62-964; AD-284 127.
Order from OTS or SLA $1.60 62-33076

Unedited rough draft trans. of Znanie-Sila (USSR) 1961 [v. 36] no. 12, p. 6-10.
Abstract trans. is available from OTS or SLA $1.10 as 62-23701, AID-62-24, 14 Feb 62, 2p.

DESCRIPTORS: *Gravity, Detection, Measurement, Magnetic fields, Light, Wave transmission.

Ivanenko, D.
THE LATEST PROBLEMS OF GRAVITATION. Open Forum of Bold Hypotheses (The Subject: Gravitation). 16 July 62, 13p. FTD-TT-62-872; AD-283 870.
Order from OTS $0.50 63-11509

Unedited rough draft trans. of Tekhnika Molodezhi (USSR) 1961 [v. 29] no. 11, p. 23-25.

DESCRIPTORS: *Gravity, Relativity theory, Light, Shielding, Gravity anomalies, Particles, Antiprotons, Aging, Quantum mechanics, Wave transmission.

Klimontovich, Yu. L.
A NEW PHENOMENOLOGICAL THEORY OF SUPERCONDUCTIVITY. [1962] 6p. (formulae omitted) 2 refs.
Available on loan from SLA 62-20285

Trans. of [Akademiya Nauk] SSSR. Doklady, 1955, v. 104, no. 3, p. 384-386.
Another trans. is available from OTS $0.50 as 62-11584, MDF K-124 [1961] 5p.

DESCRIPTORS: *Superconductivity, Theory, Thin films, Magnetic fields, Electrons, Excitation.

For abstract see Technical Translations 9: 936, 1962.

Shashkov, A. G., Yas'ko, O. I. and others.
ELECTRIC-ARC PREHEATERS FOR FORMATION OF HIGH-TEMPERATURE JETS. 18 Sep 62 [28]p. 51 refs. FTD-TT-62-1092. AD-286 591
Order from OTS or SLA $2.60 62-33542

Unedited rough draft trans. of Inzhenerno-Fizicheskii Zhurnal (USSR) 1962, v. 5, no. 1, p. 115-129.

DESCRIPTORS: *Electric arcs, Heaters, *Plasma physics, *Plasma jets, Temperature, Production, High temperature research, Design.

The most effective way to obtain high axial temperatures (up to 15,000-17,000°K) in a jet for considerable periods of time (reckoned in minutes) is furnished by the electric-arc preheaters, which have come into extensive use in working materials, in simulating reentry into the atmosphere, and in spectroscopic research. The basic requirements set forth for electric-arc preheaters are an increase in the parameters of the jet, prolonged operating time, and reduced contamination of the plasma. A limiting factor in the development of electric-arc preheaters with cooled electrodes is the maximum heat flow to the electrodes and nozzle walls that can be diverted without wearing down the electrodes and the nozzle. This flow is of the order of $4 \cdot 10^{7}$-$9 \cdot 10^{7}$ [sic] kcal/m^2.h [4, 28]. The numerous designs for existing electric-arc preheaters can be broken down into several basic types in accordance with the methods used to compress the discharge and the placement of the electrodes.

CONVECTION AND RADIATION HEAT TRANSFER. 11 Sep 62 [370]p. 213 refs. FTD-TT-61-395.
Order from OTS or SLA $21.00 62-33638

Unedited rough draft trans. of mono. Konvektivnyi i Luchistyi Teploobmen, Moscow, 1960, 254p.
##A partial trans. (p. 16-24) is available from OTS or SLA $1.60 as 61-28704, MCL-1108, 7 Aug 61 [17]p.

DESCRIPTORS: *Heat transfer, Convection, Thermal radiation, *Fluid flow, Pipes, *Blunt bodies, Supersonic flow, *Hydraulic systems, Resistance, Water, Motion, Boiling, *Liquid metals, Viscosity, Thermal conductivity, *Combustion chambers, Reflection, *Radiometers, *Electronic equipment, Radio equipment, *Reactor fuels, *Thermal diffusion, *Thermocouples, Errors.

Contents:
The effect on heat transfer of internal heat sources acting in the liquid flow in a tube, by K. D. Voskresenky and E. S. Turilina
##Heat transfer at the front of blunt bodies, flushed by a supersonic gas flow, by V. P. Motulevich
Heat transfer and the hydraulic resistance of a plate, by M. A. Mikheev
Investigation of heat transfer and hydraulic resistance in the motion of water in tubes, by M. A. Mikheev and others
Natural convection heat transfer with vertical tubes, by I. M. Pchelkin
Critical heat flows in the boiling of underheated water in channels of complex shape (pressure 100 atm abs) by I. T. Alad'ev and L. D. Dodonov
Experimental data on heat transfer in the case of nucleate boiling of underheated water in tubes, by I. T. Alad'ev and others
Generalization of experimental data on the viscosity and thermal conductivity of liquid metals, by A. G. Usmanov
Investigation of the process of complex heat transfer in a combustion chamber, by V. N. Adrianov and S. N. Shorin
Radiation heat transfer from bodies with arbitrary indicatrices of reflection from surfaces, by G. L. Bolyak
Measurement of convection and radiation components of complex heat transfer with a method involving the use of two radiometers, by S. S. Filimonov and others
Radiometric device for measurement of radiation, by V. N. Adrianov
The thermal-regime theory for certain designs of radio electronic installations, by G. N. Dul'nev
Engineering method of calculating the thermal regime of radioelectronic equipment, by G. N. Dul'nev and others
Thermal modeling of atomic reactor fuel elements, by V. A. Baum
Investigation of molecular and thermal diffusion by the similarity method, by A. G. Usmanov and A. N. Berezhnoi
Temperature-measurement error due to isotherm distortion in vicinity of thermocouple insertion point, by V. E. Minashin and others
Calculation of heat transfer and hydraulic resistance in the case of laminar liquid motion through tubes, by

S. S. Filimonov and B. A. Krustalev
Heat transfer in the case of nucleate boiling, by I. T. Alad'ev.

RESEARCH IN THE FIELD OF TEMPERATURE MEASUREMENTS (Issledovaniya v Oblast Temperaturnykh Izmerenii). [1962] [169]p. 56 refs.
Order from OTS or SLA $12.00 63-13396

Trans. of Vsesoyuznyi Nauchno-Issledovatel'skii Institut Metrologii. Trudy (USSR) 1961, no. 51(111) p. 3-109.

DESCRIPTORS: Temperature, Measurement, *Temperature sensitive elements, *Thermometers, Manometer, Mercury, Electrostatic capacitance, *Zinc, *Gold, Phase studies, Thermodynamics, *Water, *Oxygen, Boiling, *Resistance thermometers, Standards, *Thermocouples, Calibration, *Platium, *Rhodium alloys, Wire, *Blackbody radiation models (Simulations).

Contents:

Preface
Capacitive mercury manometer for a gas thermometer, by K. S. Izrailov and I. I. Kirenkov
Device for capacitively sensing the mercury level in a gas thermometer, by K. S. Izrailov
Thermodynamic equilibrium temperatures between solid and liquid zinc and solid and liquid gold, by N. V. Aref'eva and others
Apparatus for reproducing the boiling point of water, by F. Z. Alieva and V. P. Chekulaev
Reproducibility of the boiling point of oxygen, by A. D. Brodskii and I. B. Truleva
Standard resistance thermometers for measuring the medium temperature range, by F. Z. Alieva
International comparison of resistance thermometers, by F. Z. Alieva
Units for measuring heat quantities, by B. N. Oleinik
Reproduction and transfer by means of thermocouples of temperature scale range between 300° and 1063°C, by N. N. Ergardt
Similarity of results of calibrating first-cradle referenc thermocouples in the Committee's Institutes, by B. K. Bragin and A. N. Gordov
Heterogeneity of thermoelectric platinum and platinum rhodium wires, by B. K. Bragin
Method of determining the parasitic thermal EMF produced by thermocouples heterogeneity, by N. N. Ergardt
Study of a horizontal model of a black body at the solidification point of gold by a photoelectric method, by I. I. Kirenkov and G. A. Krakhmal'nikova.

Bagrov, M. M.
MEASURING THE DIFFUSION OF NITROGEN IN LIQUID OXYGEN. 10 Sep 62 [7]p. 3 refs. FTD-TT-62-802. AD-286 583
Order from OTS or SLA $1.10 62-33647

Unedited rough draft trans. of Ukrayins'kyi Fizychnyi Zhurnal (USSR) 1961, v. 6, no. 4, p. 486-488.

DESCRIPTORS: *Liquefied gases, *Oxygen, *Nitrogen, *Diffusion, Measurement, Low temperature research.

The gas phase method, applied for studying the diffusion phenomenon in liquid gases, was used for measuring the diffusion coefficient of nitrogen in oxygen at a temperature of 67.8° K. The measuring method and experimental installation are described. (Author)

Devyatov, B. N. and Kornev, Yu. N.
DETERMINATION OF TRANSITION PROCESSES IN CONTINUOUS-ACTION HEAT EXCHANGERS. 26 July 62 [12]p. 3 refs. FTD-TT-62-691; AD-284 116.
Order from OTS or SLA $1.60 62-32940

Unedited rough draft trans. of Akademiya Nauk SSSR. Sibirskoe Otdelenie. Izvestiya, 1961, no. 9, p. 21-27.

DESCRIPTORS: *Heat exchangers, Pipes, Heat transfer, *Phase transitions, Equations.

We found an exact solution of nonsteady-state problems for counter-current and direct-current devices where the interaction of media is described by the simplest fundamental equations. The integral curves obtained in the general form can be used immediately to analyze the transition processes in the devices. These integral curves are also necessary for the evaluation of the precision and an analysis of the occurrence of the errors of all approximate characteristics. (Author)

Haase, G. and Schneider, G.
INVESTIGATIONS ON THERMOELEMENTS OF THE SYSTEM IRIDIUM-RHENIUM. [1962] 10p. (figs. omitted) 5 refs.
Order from SLA $1.10 62-18263

Trans. of Zeit[schrift] für Physik (West Germany) 1956, v. 144, p. 256-262.

DESCRIPTORS: *Temperature sensitive elements, *Thermocouples, Crystals, *Rhenium, *Iridium, Tungsten, Thermoelectricity, High temperature research.

The thermopotentials of Ir, Re, and of alloys of the system Ir-Re, against W were measured up to 2450°C. The upper limit of usefulness of thermoelements of this kind is apparently between 2000 and 2400°C., depending on the combination. Systematic studies covering the entire range of concentrations showed the following to be a particularly suitable thermocouple: Ir against Ir-Re 70 (with 70% Re by weight). The thermocouple could be used even in a slightly oxidizing atmosphere with an acceptable life, giving reproducable temperature measurements somewhat above 2000°C., since the diminution of the Re content in the Re mixed crystal, because of the preferential volatilization of Re over oxide formation, amounting to 10 to 15%, could be noted only as a minor error in temperature reading (about 30°C. at 2000°C.) (Author)

Ivanov, L. I., Kulikov, I. S., and Matveeva, M. P.
METHODS OF MEASURING THERMODYNAMIC CONSTANTS OF METALS AND ALLOYS AT HIGH TEMPERATURES (Metody Izmereniya Termodinamicheskikh Konstant Metallov i Splavov pri Vysokikh Temperaturakh). [1962] [19]p. (foreign text included). Available on loan from SLA 62-20249

Trans. of Russian language article from unidentified source, n. d., p. 96-103.

DESCRIPTORS: *Thermodynamics, *Metals, *Alloys, Vapors, Heat of sublimation, Vaporization, Velocity, Elasticity, Radioactive isotopes, High temperature research, Phase studies.

The worked out method of determining the heat of sublimation of metals with the use of the principle of isotopic exchange through the vapour phase of metals, seems to be dependable. The use of radioactive isotopes makes it possible to determine partial values of thermodynamic constants, rates of vaporization, vapour elasticity, heat of sublimation and thermodynamic activity separately for each element of an alloy. (Author)

Jaffray, Jean.
THE INVESTIGATION OF HIGHER ORDER TRANSFORMATIONS BY THERMAL ANALYSIS, tr. by George R. Loehr. Mar 61 [29]p. Technical notes FRL-TN-38; AD-255 669.
Order from OTS or SLA $2.60 62-32334

Trans. of Centre National de la Recherche Scientifique, Paris. Journal des Recherches (France) 1947 [v. 1] p. 153-163.

DESCRIPTORS: *Thermodynamics, Temperature, *Transformations, Specific heat, Transition temperature, Cooling, *Chromium compounds, Oxides, *Copper compounds, Sulfates, *Sodium compounds, Ammonium radicals, *Beryllium compounds, Nitrates, Nitrities, Acetates.

In higher order transformations, latent heat is not involved; instead, specific heat increases with accelerating rapidity up to the transition temperature and then drops suddenly. Techniques of differential thermal analysis are described. Results are given for analyses of sodium nitrite, basic beryllium acetate, chromic oxide, dichromates, ammonium nitrate, and copper sulfate pentahydrate. (Author)

Kirillin, V. A.
ON INTERNATIONAL COLLABORATION IN THE FIELD OF RESEARCH ON THE THERMODYNAMIC PROPERTIES OF STEAM (O Mezhdunarodnom Sotrudnichestve v Oblasti Issledovanii Termodinamicheskikh Svoistv Vodyanogo Para). May 62 [10]p. RTS 2057.
Order from OTS or SLA $1.10 62-25461

Trans. of Teploenergetika (USSR) 1958 [v. 5] no. 7, p. 3-6.

DESCRIPTORS: *Conferences, *Steam, *Thermodynamics, Scientific research.

Polyaev, V. M.
AN EXPERIMENTAL INVESTIGATION OF EVAPORATIVE COOLING OF THE SURFACE OF A POROUS CONE WITH A HIGH-TEMPERATURE GAS FLOW PASSING AROUND IT. 17 Aug 62 [21]p. 11 refs. FTD-TT-62-1032. AD-286 565.
Order from OTS or SLA $2.60 62-33639

Unedited rough draft trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Mashinostroenie (USSR) 1960, no. 7, p. 149-160.

DESCRIPTORS: *Conical bodies, Porosity, Surfaces, *Cooling, Evaporation, Vaporization, Coolants, *Gas flow, Temperature.

The film regime of evaporative cooling of the surfaces of porous cones with different vertex angles and with high-temperature gas flows passing around them is considered. The results of the experiments are generalized on the basis of the theory of similarity. Criterional equations are obtained for the film regime of evaporative cooling of porous cones with different vertex angles. (Author)

Maslov, P. G.
THERMODYNAMIC CHARACTERISTICS OF CALCIUM, GALLIUM, INDIUM, AND THALLIUM COMPOUNDS, tr. by Bertha P. Klenova. 18 Aug 60, 10p. 11 refs. TVA-3870.
Order from OTS or SLA $1.10 62-24447

Trans. of #Zhur[nal] Obshchei Khim[ii] (USSR) 1959, v. 29 [no. 5] p. 1413-1423.
Another trans. is available from CB $10.00 in no. 5, p. 1405-1753.

DESCRIPTORS: *Thermodynamics, Thermodynamics, *Calcium compounds, *Gallium compounds, *Indium compounds, *Thallium compounds, Hydrides, Halides, Crystals, Heat of formation, Energy, Entropy, Solutions, Hydrochloric acid, Water.

Approximation formulas were derived for determining the heats of formation and free energies, logs of the equilibrium constants of reactions of formation, entropies, and heat capacities at 25° C. for calcium, gallium, indium, and thallium compounds in crystalline states and partially in solution (HCl and H_2O). Using a method described earlier and the formulas discussed above, calculations were made of the thermodynamic properties of a series of calcium, gallium, indium, and thallium compounds. (Author) (See also 60-23052)

Rastaturin, V. A.
HEAT TRANSFER FROM A GRANULAR LAYER TO A TUBE WALL IN THE PRESENCE OF INTERNAL HEAT SOURCES. 14 Mar 62 [8]p. 12 refs. FTD-TT-62-111.
Order from OTS or SLA $1.10 62-25730

Unedited rough draft trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Khimiya i Khimicheskaya Tekhnologiya (USSR) 1961 [v. 4] no. 1, p. 138-141.

DESCRIPTORS: *Heat transfer, Heat exchangers, Solids, Thermal conductivity, Convection, Cylindrical bodies, Catalysts, Catalysis.

By interpretation of the equation of thermal conductivity for solids with internal heat sources it was found that the particular coefficient of heat transfer from a granular layer to a tube wall is equal to the doubled effective thermal conductivity of the granular layer divided by the inside radius of the tube. It was shown that the proposed equation is contrast to all other er equations, is the most efficient. (Author)

Rebrov, A. K.
HEAT EXCHANGE DURING FREE MOVEMENT AROUND A HORIZONTAL CYLINDER IN RAREFIED AIR. 26 Feb 62 [13]p. 7 refs. FTD-TT-62-135; AD-273 401.
Order from OTS or SLA $1.60 62-23669

Unedited rough draft trans. of Inzhenerno-Fizicheskii Zhurnal (USSR) 1961 [v. 4] no. 9, p. 32-39.

DESCRIPTORS: *Heat transfer, *Gas flow, Cylindrical bodies, Air, Superaerodynamics.

Sheindlin, A. E., Shpil'rain, E. E., and Sychev, V. V.
ON THE SPECIFIC HEAT C_p OF WATER AND STEAM AT SUPERCRITICAL PRESSURES (Teploemkosti C_p Vody i Vodyanogo Para pri Sverkh-kriticheskikh Davleniyakh). Aug 62 [12]p. 13 refs. RTS 2055.
Order from OTS or SLA $1.60 62-32473

Trans. of Inzh[enerno]-Fiz[icheskii] Zh[urnal] (USSR) 1959, v. 2, no. 7, p. 75-79.

DESCRIPTORS: *Specific heat, Analysis, Water, Steam, High pressure research.

A new method is described for analysing experimental data on specific heat C_p. By means of this method existing experimental data on the specific heat C_p of water and steam were analysed, and smoothed values of C_p were found in the 225-700 kgf/cm^2 pressure range a temperatures of 300-600°C for selected values of temperature and pressure. (Author)

Vargaftik, N. B. and Oleshchuk, O. N.
EXPERIMENTAL INVESTIGATION OF THE THERMAL CONDUCTIVITY OF WATER (Eksperimental'noe Issledovanie Teploprovodnosti Vody). May 61 [8]p. 17 refs. TIL/T. 5171; [DSIR] NLL M3458.
Order from OTS or SLA $1.10 62-25348

Trans. of Teploenergetika (USSR) 1959, v. 6, no. 10, p. 70-74.
Another trans. is available from OTS or SLA $1.10 as 62-23150, MDF V-138 [1959] 7p.

DESCRIPTORS: *Water, *Heat transfer, *Thermal conductivity, Temperature, Measurement.

Results are presented of measurements of the heat conduction of water in the 20° to 350° C range. A table is compiled of the values of the heat conduction of water in a broad temperature range. (Author)

Wave Propagation

Al'pert, Ya. L. and Borodina, S. V.
LOW FREQUENCY ELECTROMAGNETIC WAVE PROPAGATION OVER THE SURFACE OF THE EARTH [AND] INVESTIGATION OF THE PROPAGATION OF LONG AND VERY LONG RADIOWAVES BY THE METHOD OF ANALYZING THE SHAPE OF ATMOSPHERICS. [4 Feb 56] [103]p. 39 refs. MDF A-131.
Order from OTS or SLA $9.60 62-33588

Trans. of an unidentified mono. pub. Moscow, 1955 and Radiotekhnika i Elektronika (USSR) 1956, v. 1, no. 3 p. 293-308.

DESCRIPTORS: *Electromagnetic waves, *Radio waves, Very low frequency, Low frequency, *Wave transmission, Reflection, *Atmospherics, Numerical analysis, Harmonic analysis, Oscillograms, Earth.

For abstract see Technical Translations 1: 37-38, 1959.

Chena, V. A.
TAKING INTO ACCOUNT THE INFLUENCE OF THE COHERENTLY REFLECTED PORTION OF A SIGNAL UPON ITS CORRELATION CHARACTERISTICS. 4 Sep 62 [12]p. 8 refs. FTD-TT-62-1029.
Order from OTS or SLA $1.60 62-33539

Unedited rough draft trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Fizika (USSR) 1961, no. 4, p. 17-22.

DESCRIPTORS: Radio signals, *Ionospheric propagation, Reflection, *Electromagnetic waves reflections, Correlation techniques, *Statistical functions, Diffraction.

A correlation function is obtained for the squared envelope of a signal reflected from the ionosphere, which takes into account the coherently reflected and the scattered signal simultaneously. The relation of the correlation functions to the input and output of a receiver of signals reflected from the atmosphere with different values of the turbidity function is analyzed. It is shown that the value of the negative oscillations of the correlation function of the squared envelope for a rough screen with drift depends upon the value of the turbidity function. The results obtained throw light upon previous papers and can be of use in an analysis of the relationship between the experimentally obtained correlation functions and the structure of the reflecting region of the ionosphere. (Author)

Krylov, G. N. and Makarov, G. I.
STRUCTURE OF THE ELECTROMAGNETIC FIELD OF A VERTICAL ELECTRICAL DIPOLE AND A VERTICAL ANTENNA IN SPACE ABOVE A PLANE EARTH, tr. by B. W. Kuvshinoff. 12 Sep 62, 35p. 23 refs. APL/JHU TG 230-T331.
Order from OTS $1.00 63-11508

Trans. of Leningrad U. Vestnik (USSR) 1960 [v. 15] no. 16 [Seriya Fizika i Khimii] no. 3, p. 42-66.

DESCRIPTORS: *Electromagnetic fields, *Electric fields, *Dipole moments, *Dipole antennas, Antennas, Antenna radiation patterns, Earth, Electrical conductance, Geophysics, Series, Integrals, Ionospheric propagation.

The exact calculation of the electromagnetic field of a vertical electrical dipole and vertical antenna over a plane earth is considered. This problem is especially important in the case of an antenna with directional radiation along the surface of the earth, antifading antenna, etc. The exact power series derived for the field strengths over the earth permit high precision calculation. The asymptotic behavior of the electromagnetic field at large distances is discussed. (Author)

Kuznetsov, V. and Alimov, I.
NEW METHOD OF INCREASING THE RANGE OF RADIO COMMUNICATION. [1962] [4]p.
Order from OTS or SLA $1.10 62-18255

Trans. from Sovetskaya Aviatsiya (USSR) 1957, no. 176[2734] 27 July, p. 4.

DESCRIPTORS: *Radio communication systems, *Radio broadcasting, *Radio waves, Propagation, Ionospheric propagation, Electromagnetic wave reflections, Meteors, Ionization.

This article describes the principle of long distance radio communications by means of ultra-short waves scattered either by lower layers of the ionosphere or by ionized meteoric tails. (Author)

Stratonovich, R. L.
THE DETECTION OF A SIGNAL WITH VARIABLE FREQUENCY IN NOISE. 10 Apr 62 [17]p. 4 refs. FTD-TT-62-541.
Order from OTS or SLA $1.60 62-25409

Unedited rough draft trans. of #Radiotekhnika i Elektronika (USSR) 1962, v. 7, no. 2, p. 187-194.

DESCRIPTORS: *Radio signals, Signals, Narrowband, *Detection, Frequency, *Noise (Radio), Radio interference, Statistical processes, Circuits, Probability.

For the optimum detection of a narrowband signal with unknown frequency in noise, a method of parallel circuits is proposed which are suitable when the signal parameters are constant or inconstant and when the changes in frequency are random or regular. (Author)

RESEARCH METHODS, TECHNIQUES AND EQUIPMENT

ACTIVITIES OF THE ACADEMY OF SCIENCES UKRAINIAN SSR. 26 Nov 62 [18]p. JPRS: 16331.
Order from OTS or SLA $1.60 63-13348

Trans. of Akademiya Nauk URSR, Kiev. Dopovidi, 1962, no. 5, p. 681-684 and Prykladna Mekhanika (USSR) 1962, v. 8, no. 3, p. 342-346.

DESCRIPTORS: *Scientific research, Scientific organizations, Scientific personnel, Laboratories, *Industrial research, Professional personnel, Applied mechanics.

Contents:
New departments and laboratories
Miscellaneous information
Guest session of the Department of Technical Sciences of the Academy of Sciences Ukrainian SSR, by S. P. Sushon.

CYBERNETICS AND THE THEORY OF CONTROL SYSTEMS. 19 Nov 62 [19]p. 16 refs. JPRS: 16239.
Order from OTS or SLA $1.60 63-13350

Trans. of Akademiya Nauk SSSR. Doklady, 1962, v. 144, no. 6, p. 1245-1250.

DESCRIPTORS: *Cybernetics, *Control systems, Theory, Functions, Circuits, Synthesis, Probability, Errors, Automatic.

Contents:
Comparison of the complexity of realization of monotonic functions with contact circuits containing only closing contacts and with arbitrary contact circuits, by O. B. Lupanov
Optimization of automatic control systems and the theory of K(D) images, by G. M. Ulanov.
(Research Methods, Techniques and Equipment, TT, v. 9, no. 3)

SCIENTIFIC AND TECHNICAL INFORMATION ON ISRAEL, FROM THE ISRAELI PRESS. 19 Nov 62 [47]p. JPRS: 16214.
Order from OTS or SLA $4.60 63-13356

Trans. of 14 selected articles from Sep-Oct 62 issues of 5 Israeli newspapers.

DESCRIPTORS: *Scientific research, *Industrial research, *Israel, Scientific personnel, Oceanography, Research program administration, Atomic energy, Electrical engineering, Nuclear power plants, Food, Fuels, Chemical industry, Oils, Natural gas, Phosphates, Dams, Irrigation systems, Construction, Civil engineering, Construction materials industry, Labor, Training, Pharmacology, Silicates, Industrial production, Commerce, Economics.

Contents:
Prof. Aharon Qatsir: chairman of Academy of Sciences, by Y. Ram
Pioneers of oceanographic research in Israel, by Moshe Admon
The technological advisory council (summary)
Turning point in the exploitation of our natural resources, by M. Bader
Bader calls for the use of atomic energy for light and power
Needed new assessment of our natural resources

Advancing oil discovery in Israel, by Nenahem Bader
Phosphate company to conduct research for foreign concerns
Scientists to aid in water conservation, by Yehuda Haboker
Technical and construction research institute
Guidance and training: key to construction efficiency
More research needed for pharmaceutical industry, by R. Ben-Shoshan
Silicate research institute, by Neir Hareuveni

Observation tours to benefit industry and science, by Bo'az Bar-De'a.

Fitch, C. J.
DEVICE FOR XEROGRAPHIC PRINTING WITH THICK RIBBON. 3 Dec 56, 21p. (figs. omitted).
Order from OTS or SLA $2.60 62-16338

Trans. of Belgian patent 536, 877 by IBM Corp., USA, appl. 29 Mar 54.

DESCRIPTORS: *Printing, *Electrophotography, Photography, Photographic equipment.

Klar, Janos and Polgar, Miklos.
PROBLEMS OF THE EVALUATION, ORGANIZATION AND PLANNING OF RESEARCH AT TECHNICAL UNIVERSITIES. 3 Dec 62 [8]p. JPRS: 16465.
Order from OTS or SLA $1.10 63-13281

Trans. of Felsooktatasi Szemle (Hungary) 1962, v. 11, no. 7/8, p. 423-426.

DESCRIPTORS: Universities, *Scientific research, *Research program administration.

Plaude, K.
LATVIAN SCIENCE IN THE SERVICE OF THE NATIONAL ECONOMY. 26 Nov 62 [13]p. JPRS: 16351.
Order from OTS or SLA $1.60 63-13298

Trans. of Kommunist Sovetskoi Latvii (USSR) 1962 [v. 18] no. 5, p. 27-33.

DESCRIPTORS: *Scientific research, Economics, Physics, Cybernetics, Chemistry, Geology, Electrical engineering, Automation, Mechanics, Biology, Medicine.

A summary of the principle trends of research proposed or being conducted by the Academy of Sciences, Latvian SSR.

Saparina, Elena.
CYBERNETICS INSIDE MAN. 21 Nov 62 [15]p. JPRS: 16294.
Order from OTS or SLA $1.60 63-13300

Trans. of Ogonek (USSR) 1962 [v. 40] no. 42, p. 14-15.

DESCRIPTORS: *Cybernetics, *Man, *Bioelectronics, Brain, Physiology, Digital computers, Computers, Computer logic, Biology, Automatic, Control systems.

Communication Theory

Borodin, L. F.
THE RATE OF INFORMATION TRANSMISSION THROUGH SYMMETRIC CHANNELS. 10 Sep 62 [28]p. 9 refs. FTD-TT-62-878. AD-286 603
Order from OTS or SLA $2.60 62-33536

Unedited rough draft trans. of mono. Sto Let so Dnya Rozhdeniya A. S. Popova, Yubileinaya Sessiya [Moscow] 1960, p. 57-73.

DESCRIPTORS: *Communications theory, *Data transmission systems, Information theory, Coding, Transmission, Probability, Errors, Communication systems.

Expressions are given for the traffic capacity of symmetric channels. A graphical method is given for determining the optimum value of the probability of symbol erasure (in the sense of the maximum traffic capacity of a channel). The problem of the rate of information transmission through a symmetric "a" channel is examined. It is shown that the optimum code of an erase channel in the presence of a sufficiently large number of symbols in a code combination allows information to be transmitted through an erase channel with a previously assigned uncertainty and rate, close to the traffic capacity of the channel. A method is indicated for setting up codes which have properties close to those of the optimum code of an erase channel, and also codes in which all combinations differ from one another exactly by $d = a^m - 1$ positions. (Author)

Lyubich, Yu. I.
A REMARK ON THE TRAFFIC CAPACITY OF A DISCRETE COMMUNICATION CHANNEL WITHOUT NOISE. 29 Aug 62 [12]p. 6 refs. FTD-TT-62-1144.
Order from OTS or SLA $1.60 62-33550

Unedited rough draft trans. of Uspekhi Matematicheskikh Nauk (USSR) 1962, v. 17, no. 1 (103) p. 191-198.

DESCRIPTORS: *Communications theory, Data transmission systems, *Communication systems, Information theory, Coding, Transmission.

Ovseevich, I. A., and Pinsker, M. S.
CODING AND CORRECTION IN CHANNELS WITH ATTENUATIONS. [1962] 21p. 9 refs.
Order from OTS or SLA $2.60 62-16716

Trans. of A[kademiya] N[auk] SSSR. O[tdelenie] T[ekhnicheskikh] N[auk]. Izv[estiya]: Energ[etika] i Avto[matika] 1960, no. 3, p. 145-156.

DESCRIPTORS: *Data transmission systems, Communication systems, Signals, Wave transmission, *Attenuation, *Coding, Corrections, *Communication theory.

USSR INDUSTRIAL DEVELOPMENT: SOVIET REGIONAL ECONOMY NO. 22. 26 Nov 62 [42]p. JPRS: 16334.
Order from OTS or SLA $4.60 63-13329

Trans. of Narodnoe Khozyaistvo Uzbekistana (USSR) 1962 [v. 4] no. 8, p. 25-27 (excerpts); Vneshnyaya Torgovlya (USSR) 1962 [v. 42] no. 7, p. 30-38 (excerpts); and from Sovetskaya Kirgiziya (USSR) 1962, 27 July, p. 2; 28 July, p. 2 (excerpts); Rabochaya Gazeta (USSR) 1962, 22 Sep, p. 2; Kommunist, Moscow (USSR) 1962, no. 15, p. 54-60.

DESCRIPTORS: *Industrial production, *Economic conditions, Production, Construction, Transportation, Electric power production, Hydroelectric power systems, Coal, Gas, Petroleum, Automation, Metallurgy, Chemical industry, Textile industry, Agricultural machinery, Food, Housing, Machine tool industry, Scheduling, Supplies, Industrial equipment, Machines, Labor, Manufacturing methods, Commerce, Packaging, Quality control.

Contents:
The fulfillment of the obligations under a serious control, by V. Dmitriev
Industrial advances in Kirgizia, by A. Lapshin
National economy of Uzbekistan in the first half of 1962
Interregional supply difficulties in the Ukraine, by Al. Sirota
Large reserves in machine building, by V. Lisitsyn
Contribution of the Kievskii economic administrative region to foreign trade, by T. Gritsyuk
Fifty countries of the world receive Dnepropetrovskii Sovnarkhoz production, by N. Vahrushchev
Increase in exports, by B. Brig.

Petrov, G.
BUSINESSMEN FROM SCIENCE AND THEIR PATRONS. 29 Aug 62 [11]p. FTD-TT-62-1120. AD-286 563
Order from OTS or SLA $1.60 62-33629

Unedited rough draft trans. from Pravda [Moscow] (USSR) 1962, 23 May, p. 4.
An abstract trans. is available from OTS or SLA $1.10 as 62-25772, AID-62-78, 11 June 62, 3p.

DESCRIPTORS: *Scientific reports, Quality control, Scientific personnel, Personnel, *Scientific intelligence, Education.

For abstract see Technical Translations 8: 383, 1962.

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For basic list of Periodicals Translated Cover-to-Cover see Technical Translations, Volume 9, Number 1.

This basic list is kept up-to-date by giving only changes in the subsequent issues of Technical Translations.

No changes are necessary for this issue.